SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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Original Correspondence.

UNINTELLIGIBLE FINANCING.

SIR,—As it is most desirable that every capitalist, whether it be the working man with but 5s. to invest or the millionaire to whom the loss of a few thousands is unimportant, should know what probability there is of securing a return for his outlay, and when that return may be expected, I should like to make a few observation relative to the project just launched by the General Expenditure Assurance Company. The directors offer to sell 5,000,000*l.* worth of their promissory notes for 250,000*l.* cash down, which any commercial man would accept as an evidence that such promissory notes are only worth 1s. in 1*l.*, a price which would sometimes be given by a wealthy speculator for a good all-round lot of dishonest bills, and I think most persons acquainted with business would as an investment for 100,000*l.*, or to give the preference to the latter lot—the purchase of either would be a mere speculation which might turn out a good one or a bad one, but the advantage of the dishonoured bills is that a better estimate could be formed of their realisable value. The inducement held out by the company for the public to take their promissory notes at 1s. in 1*l.* is that they will be paid off in full by quarterly drawings, which raises the question whence comes the funds wherewith to pay them?

The solution of this question can only be obtained by an analysis of promises and probabilities. In the first place it is promised to pay 5,000,000*l.*, with the interest upon a capital of 250,000*l.* This is a promise. The corresponding probability is that the company cannot earn more than 10 per cent. interest on this 250,000*l.* working capital, that is 25,000*l.* per annum. If the whole of this amount be applied to the redemption of the promissory notes it will take 200 years to redeem the 5,000,000*l.* But the prospectus states that only a portion of this interest is to be so applied, so that every subscriber of 5s. risks having to wait for the return of it until some date after April 1, A.D. 2081, and there are about 100 chances to one against the repayment being made during the investor's lifetime, especially as from the 25,000*l.* annual interest, even supposing that amount to be obtained, there are many probably heavy deductions to be made. In the first place there are the fees annually payable to six directors—Messrs. W. R. Cusack Smith and D. and P. Peploe, Sir Henry Wilmot, Bart., V.C., M.P., Sir Henry Cotterell, Bart., and Messrs. E. Digby-Boycott and T. B. Edwardes, the latter being managing director—who would probably not be low-priced officers; to a respectable solicitor, Mr. R. Dixon; and to Mr. Adam Steuart, the polite and elegant secretary, who would certainly, one would think, require a good salary. The office expenses, although, I believe, a third floor, has been economically selected, would also be considerable; and to do an amount of business likely to return 10 per cent. on the 250,000*l.* capital—the managing director is described as a merchant in the London Directory—there would be at least some working cost.

Of course the invitation may be given solely to test the credulity and speculative feeling of the public just as it was advertised about the beginning of the century that at a certain theatre a full-grown man would actually get inside an ordinary glass wine bottle, which would afterwards be handed round to the company. The theatre was crowded to suffocation, but in that case the entrance money was returned in full at once, the authors of the joke explaining that it was to decide a wager whether so many could be brought together by such an invitation. It is unfair, however, to take the view that the directors do not intend to use the money to earn profits; it must, therefore, be assumed that the concern is based upon an elaborate actuarial calculation of that which is very simple. It has been shown that 25,000*l.* per annum would pay off the 5,000,000*l.* worth of promissory notes in 200 years, so that, deducting from the 25,000*l.* the directors' fees and expenses of offices and management, it may be concluded that the whole amount will be paid off within 300 years; hence taking the half of this as the probable time at which any given bond will be paid, it follows that the only question for intending investors to consider is—What is the present value of 5*l.* payable 150 years hence? An actuary would say only a few pence; investors are asked to buy it for 5s., and the executive offer to repurchase not at 90 per cent. out of the 5s. but of the actuarial value, so that any holder becoming tired of waiting before the 150 years has expired can receive probably 4d. in return for the 5s. he has paid. To the company, therefore, the operation will not be an unprofitable one.—*Nov.* 17, H.

THE ELECTRIC LIGHT

SIR,—The arc-light has hitherto been the only electric light utilised, principally for large buildings and spaces. The most prominent of these are the Siemens, Jablochkoff, Crompton, Rapieff, and other lamps. At the recent Glasgow Exhibition the Brush system—adopted by the Anglo American Electric Light Company—was exhibited; also the Crompton, the Lontin system, and the Mackenzie (or Strode) light; the two latter were afterwards withdrawn. These lamps give the intense light and a deep shadow, and the difficulty with them has been the nicety of attention required in regulating the carbon pencils, and the impossibility of dividing the light.

These difficulties in connection with electric light, however, seem to have been overcome by the researches of Mr. J. W. Swan, of Newcastle-on-Tyne, who delivered a lecture recently in that town, showing his electric apparatus, and the progress that had been made in producing lights of practical application for dwellings and streets. The Swan light is produced by the incandescence of a carbon filament, as small as a hair, in a glass globe about 3 in. high, from which the air is totally excluded. About 30 of these small lamps were exhibited at the lecture; any one or all could be extinguished or lighted in a moment by touching a knob. Twenty years ago he made experiments with incandescent carbon paper in closed vessels, but they were discontinued on account of his being unable to exhaust the air sufficiently to prevent the carbon from consuming, which was shown by the smoke on the glass. With the invention of the Speigel air-pump, and when the result of Mr. Crooke's radiometer experiments had become known, showing how a real vacuum could be produced, Mr. Swan resumed his experiments with the carbon lamp. With the assistance of Mr. Stearn, of Birkenhead, in 1877, he fixed carbons in a number of glass globes, the air in them being fully exhausted, and the chief difficulties of forming a perfect electric lamp were thus overcome. The light produced in each of the small lamps is soft, white, steady, cool, and pleasant to the eye; does not cast any unusual shadow, being superior in illuminating power to the best gas-burner. From what has been said this electric light cannot give off any offensive products as gas does, nor does it produce appreciably any heat in rooms or shops. Here, then, is the electric lamp of the future, fulfilling all the conditions requisite for lighting drawing room, office, or workshop, and streets, being divisible, by taking branch wires to each light from the main conducting wire.

Mr. Swan says "it has been asserted on high authority that great loss necessarily attends the division of the electric light. To a certain extent this was true of lighting by the electric arc, but was totally erroneous of lighting by incandescence. Faraday had stated the law in these words. An electric current which will heat 1 in. of wire quite hot will also heat to the same temperature 100 in. or an infinite length of the same wire." It was only necessary, in order to maintain a given current, to increase the force which produces it in the same proportion as the resistance to its flow increases. It follows that the cost of raising to a certain degree of incandescence a longer or shorter length of carbon, or of maintaining a 10-candle light or 100-candle light, will be exactly proportional to the light produced.

With regard to distribution, he believes it is practicable to light any large town by means of wires laid underground, as gas pipes are placed, the wires branching from one centre, conveying the electric current to lamps like those he has invented. The electric lamps burning in the lecture room were supplied by a current proceeding from generators working in Mosley-street, about ¼ mile distant. It would be as easy by supplying a more energetic current, under higher pressure, as it were, to maintain the same lights several miles away; for this purpose the conductors need not be large. Though the electric light by incandescence had not been yet put to much practical use, one thing was ascertained—that it would be less costly than gas lighting. The great difficulty which until now had completely blocked the way to the extensive use of the electric light was the difficulty of division. That was now completely overcome by the system of producing electric light by the incandescence of carbon in vacuo, of which a practical demonstration had been given with his lecture.

It may be added that Mr. Swan's premises fronting to Mosley-street are lighted every night by about 18 small electric lamps on his principle; the lights are remarkably clear, white, and steady. The carbon filaments are expected to burn for a long time without changing, and the light if anything improves by long continued use. The Gramme electric machine is driven by a gas engine.

The only question to determine in view of its general adoption for lighting towns and villages seems to be the possibility of keeping the lamps alight continuously. Duplicate steam-engines and generators would be required in every case, so that should one engine break down the other might keep in motion the generators, and thus maintain and distribute the electric current to the various lights.

M. S.

ELECTRICITY IN COLLIERIES.

SIR,—I am directed to correct an error in a letter from Messrs. Colborne and Ward on this subject which appeared in the Times of the 30th ult. Writing of the supposed cause of the Risca explosion, they say,—"The gas, in the opinion of . . . Professor Abel, who had been consulted by the Home Office, was not exploded by electricity." Professor Abel has never expressed any such opinion. He was never asked by the Home Office for his opinion as to the cause of the Risca explosion; but that department having, in reference to the Risca explosion, addressed to this Commission questions which did not refer to the ignition, by lightning, of gas in a mine, Professor Abel and Professor Clifton, who are members of this Commission, concluded a joint letter answering those questions in the following terms:—"We think it right to point out that it appears to us not impossible, considering the arrangements frequently existing in respect to metal guides and to the wires used in the ordinary means of signalling, that during a violent storm a portion of an electric discharge may find its way into workings and fulfil conditions necessary for the ignition of gas, even at some distance from the pit's mouth. This possible source of danger, as well as other points connected with signalling arrangements for mines, is engaging our attention."

ARTHUR J. WILLIAMS, Secretary.

Accidents in Mines Commission, Victoria-street, Nov. 6.

SIR,—Will you permit me to make a few remarks on the subject of Messrs. Preece and Siemens's letters respecting the danger likely to be incurred by the introduction of the electric light in coal mines? I do not agree with Mr. Preece as to the risk of unintentionally providing conductors for lightning while fixing the electric wires, because most pits have plenty of such conductors already established in wire-winding ropes, water-pipes, &c.; but I am able to confirm what he says of the danger of fire being communicated by the conductors from having experienced cases of the kind with currents of electricity not so powerful as those usually used for producing the electric light. It is, moreover, natural that the danger pointed out by Mr. Preece of persons being killed by accidentally forming part of the electrical circuit should be denied by Mr. Siemens; but purveyors of the electric light, from their experience in manipulation, cannot, perhaps, see its disadvantages, and Mr. Siemens's idea of a man being "predisposed" to such a death is not proved by Mr. Siemens being able to handle the wires from a dynamo-electric machine with impunity. I am convinced that gentleman would suffer terribly if he completed the circuit at the lamp during a momentary interruption of the electrical circuit through the carbons. I have known persons to have been rendered seriously ill in such circumstances. The current which maintains the Jablochkoff light consists of rapidly alternating disruptive discharges of very high intensity, and would in a very short time kill any one who chanced to form a part of the circuit; and should the conductors be grasped by the hands, the muscular contraction would render it impossible to let them go without assistance.

F. HIGGINS.

Exchange Telegraph Company, Cornhill, London.

ON COKE MAKING—No. III.

SIR,—The quantity of water used in cooling the coke inside the beehive oven appears to have been given too low in a former article; the quantity used is calculated to be about 8 cwts. per ton of coke, so that in drawing from 3¼ to 4 tons of coke from one of these ovens about 1½ ton of water is injected into it. The quantity of water remaining in the coke after it has been sent away to the consumer is said to be about 1 per cent. of the weight, though often much more. The only competing system of making coke at present known as against the beehive oven is that known as the Coppée oven. In this system the coke is watered on the outside; a much larger percentage of water is combined with it—about 3 per cent.—so that from this cause only the same price per ton could not be realised from it as with that from the ordinary oven.

COPPEE OVENS.—About seven years ago the number of Coppeé ovens erected or in course of erection on the Continent was 2962—in France and Belgium, 1100; in Germany and Austria, 1862. At most of these the waste gases were utilised in raising steam in the boilers required for winding, pumping, ventilating, and coal-crushing engines at various collieries. At that time 30 of these ovens had been in operation at Chapeltown Colliery, near Sheffield, about one year. At the present time the Ebbw Vale Iron Ore Company have about 100 of these ovens in operation; the Dowlais Iron Company, two rows, each containing 72 ovens; the Barrow Hematite Company have 100 ovens on this system. At the present time there are about 4000 Coppeé ovens in operation on the Continent and 380 in England.

The distinguishing features in the Coppeé system are rapidity in the coking process and avoiding damage to the walls of the oven by watering the coke on the outside; there is also less waste of carbon. The principal dimensions of a Coppeé oven for 24 hours burning are—Length, 29½ ft.; breadth, 1½ ft.; height, 4 ft.; brickwork between the ovens, 13½ in. When built for 48 hours coking the breadth is 2 ft., and the height 5 ft. 7 in. There are two metal doors at each end of the oven—the upper one being 1 ft. and the lower 3 ft. in height. The ovens in a row are built in pairs. Between each two ovens there are 28 vertical flues on one side of each, through which the gases are conveyed from two ovens to a horizontal flue under one oven to the end, returning by a similar horizontal flue under the other oven of the pair, thence into the main gas flue, from whence the heated gases pass to the chimney, or more generally they are made to pass under one or more boilers before entering the chimney. The heat in the horizontal flues under each oven is found to be so great that it is considered necessary to build cooling flues under them.

The coke is thrust out of these ovens by a ram, worked by a small engine, on to the loading bench. This is done in two or three minutes; the lower doors are then closed, and the coal in readiness at the top is dropped into the oven through apertures provided for the purpose—these are closed as soon as the oven is loaded. The coal is levelled by rakes, which are passed through openings in the upper doors; these are also closed. The time taken is eight minutes from the opening to the closing of the doors again. The entrance of air at the beginning of the coking process is regulated through small channels; it may be supplied partially or shut off as required. Water is thrown on the coke as soon as it is pushed out of the oven. In Belgium a percentage of 70 to 83 of coke is obtained. In England the percentage, as far as trials have been made, is 67 to 75 of coke. The coal is always crushed before the ovens are charged with it; this and the high temperature maintained in them combine to form a hard dense coke. The rapidity with which the coke is made in the Coppée system is due to the highly-heated walls of the narrow oven, heat being communicated by the side and bottom flues—so that little carbon is lost by emission of smoke at the commencement of the process. The quantity of coal used per hour is stated to be 6700 lbs., or nearly 3 tons. The arrangement of these ovens provides for the first gases evolved from an oven just charged uniting with the hot gases from the adjoining oven, and thus a high temperature is speedily got.

The cost of building a range of Coppeé ovens of the best material is per oven about 80*l.*; with crushing machinery, ram, and engines the cost will be about 14*l.* extra. Each oven produces about 2 tons of coke in 24 hours, or 12 tons per week: 30 feet space is required at the front and back of the oven. The economy of drawing the coke by machinery and watering on the outside are two prominent advantages of this system, permitting also a speedy re-charging of the oven with coal.

It is said that the coal in Belgium, where most of the Coppeé ovens have been erected, consists mostly of fixed carbon, and is more suited to the Coppeé system than English coking coals, which have a larger proportion of volatile matter in their composition, and carbon being a constituent in these is dissipated in the process of coking. It may be assumed, therefore, that the English coal will give a less percentage of coke than the Belgian coal under similar circumstances. A method of making coke was adopted at New Brancepeth Colliery some years ago in ovens having some resemblance to the Coppeé oven. The breadth in this case was 4 ft. per oven instead of 1½ ft.; there were no flues to heat the bottom of the oven; the coke was thrust out by a ram and engine, and watered externally. The practical objection to the coke made was the watering outside and the large percentage of water retained in the coke, 3 per cent. or upwards, which led to the system being given up.

The cost of maintenance of Coppeé ovens in Belgium, where they have been in operation 18 years, is stated to be 6s. 4d. per oven yearly. This small sum for wear and tear is the result of great pains being taken at the outset in their erection, using only the best materials, and the regular temperature of the walls of the oven, consequent on avoiding the use of water internally. Each oven is calculated to produce steam from the waste heat equal to an average of 3-horse power—72 ovens will supply steam in boilers equal to 216-horse power. If 5 lbs. of coal per horse per hour be consumed at any works in operation—say, 18 hours in each day—the total consumption yearly would amount to 2482 tons; this at 3s. 6d. per ton=449*l.* 7s. A calculation of this kind can be made for the beehive oven, but it would be based on a smaller consumption of coal, and much less production of waste heat than the foregoing.

Another point of superiority advanced by the Coppeé Coke Company in comparison with the ordinary oven is the larger yield of coke, consequent on the high temperature maintained in the oven, whereby less of the fixed carbon is wasted. It is stated that the Coppeé oven is peculiarly adapted for coking semi-bituminous coal, or utilising anthracite for this purpose, the latter being mixed with 50 per cent. of bituminous coal and a small proportion of pitch. These coals after being crushed are in a much better condition for mixing and undergoing the coking process than in the form of ordinary small coal. The general results are stated to be twice the quantity of coke made per oven as compared with the Beehive method, and 10 per cent. larger yield of coke from the same coal.

M. E.

LONDON AND PARIS COAL SUPPLY.

SIR,—Certain errata in my correspondence of last week—for instance, trucks for sacks, Midland for North-Eastern, carriage for labourage, &c.—I unfeignedly regret are attributable to my *calligraphie coulante*. As to sack conveyance, I could have desired, had your valuable space not already been too far encroached upon, to have enlarged upon this most important element of saving, as there are undercurrents in motion which must be scotched. A railway chief of department was pleased to report to his general manager that an 8-ton coal wagon could only take 5 to 6 tons of coal in sacks in lieu of 8 tons of coal in bulk, the gravamen of which was impressed upon me, as, if well founded—or, indeed, based upon any credible datum whatever—was calculated to arrest the progress of my arrangements with the railway company in question. My request being formed only just to confer with the originator of this *effroi*, or scare, I asked how the gentleman arrived at his outcome, to which he irresolutely replied, "it was mere surmise on his part," and before the termination of our interview unreservedly admitted that an 8-ton coal wagon could carry as great a tonnage in sacks as in bulk. My correspondence in your last week's issue on this head does not, for to-day, require dilatation, taking up the space which you will indulgently permit me to turn to account for other matter. I have, fortuitously, just received a letter upon railway exploitation in an English-speaking country, some thousand miles from our shores, giving a specimen of railway corruption, "A merchant, wanting to send cereals away sharp, requests the agent of the railway to place a certain number of wagons at his disposal, which is only complied with on the payment of so much per sack dispatch money, which goes into the pocket of the agent without ever coming to the knowledge of the central authorities." Now, this information came from a party in the service of the railway in question. According to the evidence of a leading witness for the promoters of the projected Hull-Cudworth Railway, as much as 25*l.* is paid on the Tyne on a single coal cargo as dispatch money. It would be too prolix to develope the immense advantage attendant on the dispatch of the coal wagons from Doncaster, and the great loss otherwise entailed. Without attempting to apply such remarks to the marshalling department of of coal wagons at Hexthorpe, Doncaster, it is a natural consequence that with the total absorption of the coal traffic by the proposed undertaking—otherwise it will only form an exception—the retention of an expensive establishment will be abrogated, which in the case of a railway company paying a mere fraction above what I receive from the British funds appears to me to be of the greatest importance. Let it not be imagined that the Great Northern and Boston Deeps are alone capable of being resorted to for carrying out my undertaking. The North-Eastern have access to the seaboard from pits on their system to Brough-on-Humber surpassing by far Hull in economy and dispatch. The Manchester, Sheffield, and Lincolnshire to Keadby, the London and Yorkshire to Goole, the Midland to Sutton Bridge Dock and Lynn, the Great Eastern to Wisbeach and Lynn, the Great Northern as above, and to Sutton Bridge Dock; and last, but not least, the Aire and Calder Navigation to Goole, from all which points the shipment of coal to London and Paris can be effected, although all not upon equally favourable conditions, but in every case at a considerable saving in rail and Tyne transit. Such saving, according to my letter in the Journal of Oct. 30, was stated to be upwards of 5s. per ton on mere rail, and upwards of 4s. on mere Tyne transit, which, with allowing time for a special *matériel*, will exceed 6s. on mere rail and 5s. on mere Tyne transport, in both cases with attendant expenses from the pit's mouth to metropolitan consumers' premises. Of course, if we take into account the saving on the current selling price to consumers the profit or saving is enhanced. Steam coal can be delivered in Paris at a profit or saving of a minimum 10s. per ton on current selling prices; gas coal at such a great saving on both rail and Tyne transit as to open out an entirely new market for the immense quantity of gas coal from Yorkshire especially. The present high rates of transport close the London market to Yorkshire gas coal.

A leading banker in the colliery districts, repeatedly making the largest advances to the coal mining interests, avowed as follows:—"If the coalowners persist in temporising with the entry into serious calculations, based upon sound data and practical experience, it is utterly impossible to emerge out of the direful abyss of the district." Bankers are now taking the alarm, and well they may. I have, on my recent visits to the colliery districts, been in personal communication with the largest coalowners, two only of whom in the entire district I found interested in steam shipping; but in both categories I met with the most profound ignorance as to economical sea transport, with a total inaptitude to make a calculation; in short a complete *laisser faire, laisser dire*. If we glance at the Durham and Northumberland districts we find, on the contrary, one coalowner alone stating, at a public meeting, that he had upwards of 100,000*l.* invested in screw colliers, a man of transcendant talent and business habits, withal the most unassuming, blithe, and courteous man of the world. We find another, not only owning screw colliers, but having constructed a shipping port; in short, the coalowners of that district, impressed with the imperious necessity of cheap transport for their output, have acquired screw colliers, which, as admitted by their able junior parliamentary representative, a leading coalowner, has been their rescue from absolute annihilation, as far as the London coal supply is concerned. I have urged a public meeting to be held at Barnsley of the coalowners, bankers, and miners of the colliery districts, as my scheme is truly of national importance, affecting millions of capital invested, investing, and projected to be invested in coal mining, large advances by bankers, and an alleviation

of the hard fate of the numerous mining population. Sad work is now being enacted in Ireland; and if the coalowners of Yorkshire, Derbyshire, and Notts persist in closing their ears to the serious application of what the independent technical Press declares to be their only rescue; the miners, disembarrassed of connection with their present paid secretaries—not to use the word mercenary—will appeal to the highest tribunal of the land in a general combined movement to be liberated from the existing system, fraught with the direst misery to themselves and families, with no gleam of hope for the future, I have courted familiar intercourse with them, and found them a thrifty, peaceful, God-fearing, long-suffering, and intelligent class.

Eschewing circumlocution, the miners, having their affairs in future administered by a non-stipendiary independent consultative body from their own midst, will follow in the wake of the downtrodden Irish justice-seeking tenant farmers. The Metropolitan Daily Press, the journal possessing the largest circulation in the world, informs the public that the coalowners now in question aver they cannot compete with seaborne coal from the Tyne in the London market, and must consequently close their pits. I am prepared to prove to the investing public—thanks to the publicity given in your columns, per meating the highest class capitalists—that no safer or more lucrative channel exists for placing their funds than in the exploitation of the Yorkshire, Derbyshire, and Nottinghamshire coal fields, provided through the undertaking proposed by me with the most economical sea transit, so that with a consequent monopoly of the London and Paris supply and general coal export any amount of capital may be procured. Truly may it be said of each district—"With desolation is the land made desolate because no one thinketh." The miners are in a position to prove to the nearly four million denizens of London that they can be supplied with coal enfranchising them to the extent of as many pounds sterling from the exorbitant prices with which they are mulcted. The problem is not difficult of solution upon an equitable basis of compensation to the coal lessees, an increased royalty to the lessors, a permanent remunerative rate of wages, with constant employment, to the miners, an immediate redemption of advances by bankers to coalowners, a much larger net revenue to the Midland, Great Northern, Manchester, Sheffield and Lincolnshire railways than their maximum coal transport to London, an incomparably larger revenue to the North Eastern on their Yorkshire coal traffic, equally so to the Lancashire and Yorkshire railways.

Ramsgate, Nov. 16. W. J. THOMPSON.

MINING IN SPAIN—ASTURIAS—No. II.

SIR,—Within 500 yards of Castanedo lies the eastern boundary of the copper mine Juan y Guillermo. This mine was inspected some two months ago by a young English engineer, who failed to see any merit in it. It has several parallel lodes; workings have been opened on three of them by the former proprietors, who extracted a fairly large quantity of ore, but owing to dissidences they allowed it to fall into debt to the Government, who cancelled their title, and ceded it to the present proprietors. Present workings are carried on only on one of the lodes—the first, nearest to the river bed. These workings penetrate to a depth of about 30 ft. only below the level of the river. This lode has from the surface crop to the depth to which it has been followed a regular thickness of 4 ft. 6 in., with well defined walls of eruptive rock, the bed of the lode being calcite, carrying in it ribs of clean copper pyrites, averaging in thickness of clean ore about 19 to 20 ins. A parcel of ore from this mine was sold in England by the present proprietors in June of the present year, which although not classified yielded on dry assay 12¾ per cent., and a sample box of the same ore, classified as first, was assayed at Swansea a month earlier, yielding 21¾ per cent. The result of working with four pares since July to date is a stock on the mine of over 40 tons of assorted ore ready for shipment.

Overlying the eruptive rock there is a good stratum of smokey white marble, which at the crop does not represent stuff that might be used for the finer purposes, but for ordinary uses, such as stair slabs, mantlepieces, and floors it would do well. The same eruptive dyke that holds the lodes in the above mine continues, and can be followed N.N.W. about 1500 metres, at which distance the crop of ore again comes to the surface.

Crossing the mountain range direct south from the above mine for a distance of about six miles we come to Somiedo, where there are lodes of realgar, and a little westwards from Somiedo, at Piedrajueves, there are alse extensive deposits of copper pyrites. The whole of the districts now being entered have been up to some few years ago without roads, or means of transit, other than by the ordinary bullock carts across the country. As in all probability few of your readers will have seen these country carts I will endeavour to describe them. A narrow framework is placed over the axletree of the cart; this axletree has the wheels fixed to it, and is constructed of a thick block of wood, with the bearings where the frame lies on it raised above the level of the tree by turning. The body of the cart consists of a piece of wickerwork, bent to the shape of the frame, and staked to it. The wheels consist of felloes strongly bound together by iron pieces, with one big centre piece crossing it diametrically. The tree passes through this piece, and is wedged in it. As no lubricant is used between the body and the raised bearings every move of the cart creates a most frightful screech. This is considered necessary by the countrymen, since "the bullocks will not continue moving without constant prodding unless they hear it, With that noise at their backs they never stop till bidden to do so." This is what the people say. The noise made by half-a-dozen of these carts loaded on a summer's eve may be heard at a long distance, whilst passing them on the road is not to be contemplated when l estriding an ordinarily spirited horse, mule, or even donkey.

Starting northwards from the Juan y Guillermo Mine towards Salas an extensive deposit of pyrolusite of good quality is met with, only known to a few, and neither owned or worked by anyone, although the distance to Pravia as a shipping port is only 9 miles by a good road of the second order throughout, and the transport charge on the ore would not exceed 10s. per ton.

Starting westwards from the same mine we pass Soto de los Infantes, a very prettily situated little village, distance about half a mile from the mine. Continuing our journey, after passing several villages amongst the mountains we reach Sorribas, where there are some anthracite and antimony mines, the former being worked for local requirements, the latter lying idle. Further on more antimony is met with, near the villages of Tandes and Portlie; and at Soto de los Molinos there is a fine crop of rich galena. Further westward still, to some little distance beyond Cangas de Tineo, and at a place called Pena del Caervo, village of Folgeraju, is another extensive deposit of sulphuret of antimony.

Returning to Talas, and continuing northwards by Espina and Tineo, to a distance of about 10 miles from the latter, we come to the village of Navelgas. The district around is marked by remains of vast workings that at some former day were effected in it. There are the remains of extensive reservoir for water, and an aqueduct can be traced for a distance of some 7 miles along the mountain sides some portion of which is still in good repair. Near the village there are the entrances to subterranean workings, reported to be of great extent. At the entrance to one of these a serpent on each side has been rudely cut, and which appears to indicate that these workings would have been effected by the Phœnicians, although the aqueduct and reservoirs appear to be of a later date, probably Roman. From these workings immense rubbish heaps exist, the site on which Navelgas stands being mostly these. Gold in quantity has always been found, and is now found after heavy rains. After these the people go to their fields, where they have a sharp running watercourse, and examine the bottom, whence they pick up the gold in large and small nuggets. These they sell at the periodical fairs to the arrieros (pedlars) who go to Madrid, and in their turn sell what gold they have bought to the Mint. Several lucky finds have been made within the memory of people now living. No attempt has been known to have been made to explore the ancient workings, since they are effectually guarded from local avarice by terrible traditions. The entrance to one of the galleries being named La Cueva del Diablo, and to another La Cueva de los Serpientes, and as both are pictured to be peopled with ancients and their accompaniments, horrible and deadly, no person from the district would for one moment entertain the thought of entering either the "Devil's Cave" or that of the "Serpents." A ship broker at Gigon has at present 28 nuggets of different sizes, some of them weighing from 2 to 3 dwts., which he purchased from a Navelgas farmer, who after a freshet in his fields, caused by a thunder shower in August last, picked them up out of his watercourse. These were lately examined by the writer.

Starting west from Tineo through Gera, a small village—probably one of the dirtiest in the world—across a table, and covered with hearth, and at a distance from Tineo of about 7 miles, we arrive at Figueras, another small and dirty village, situated on the breast of the tableland in its declivity towards the River Claudal. At this place there are also ancient workings of importance, and the remains of an extensive castle or fort. Between the village and the river there are the outcrops of five parallel asbestos lodes. Felspathic rocks predominate, which pierce the surface, and rise to some height above the ground left by the easier denudation of the other rocks. One of these lodes has been formerly worked to some extent; it is found accompanied by black earthy matter, consisting chiefly of manganese.

This mine formerly belonged to a grandee of Spain, who in company with a bishop of Oviedo worked out a quantity of minerals; and it is reported that at the present day there exists in the Royal Armoury at Madrid a complete dress made of the mineral extracted. The people in the district at present weave with it wicks for their lamps. Its quality is good, with long and flexible fibre.

Proceeding westward about three miles we arrive at Pola de Allande; and as this is the best place we can find to rest in prior to going over El Palo, the only feasible pass across the Pyrenees from this place, we will refresh ourselves, to continue another day our journey to the ancient workings and the rivers on the other side, where gold washing is periodically carried on. J. A. JONES.

Gijon, Oct. 28.

MINING IN CALIFORNIA.

SIR,—The mining interest of this State, as also that of the neighbouring territory of Arizona, is receiving increased attention owing in some degree to the falling off of dividend paying mines in the State of Nevada, to which part of the country capital has hitherto been directed. The gold mines of California are now being developed in a practical and systematic manner, and under the supervision of men who are no theorists, but sufficiently educated and experienced to ensure success in working a mine that has any merit in it. Many of the old and abandoned quartz mines have, under fresh auspices, been reopened and made to pay good dividends. The improved appliances to hydraulic and drift gravel mines have afforded a new impetus to these branches of gold mining which more than any other are yielding immense returns. As these gravel deposits cover hundreds of square miles these returns must continue, it is obvious, for years to come with no perceptible decrease. It cannot be too often asserted that in the superintendence of a mine a practical miner is a *sine qua non* to success. The special qualities required are such that unless they combine scientific skill with executive ability and a complete knowledge of mining as carried on in this country, a superintendent often, almost invariably, entails pecuniary loss to the company by whom he is employed. Fifty per cent. of the precious metal mining on the Pacific Coast has been a failure owing to incompetency on the part of the superintendent; and many English companies have come to grief simply through this cause. Mines which they have abandoned in despair are now being worked profitably by others on a different plan. We even hear that some of these have been put afresh on the English market under other names, and I believe I am correct in stating that the purchase of at least two of them is at present being negociated by parties who have come out for the purpose. All English companies, to my mind, would afford themselves an immense amount of protection were they to adopt the custom of having at least one confidential party living in San Francisco who could be depended on to visit their mines periodically to see that all went right, and who was authorised in submitting his opinions—where he differed with the superintendent—to the board of directors at home. We often see and hear of mining mismanagement here which is never known at head-quarters, or known ultimately only by the disastrous results occasioned by such mismanagement on the part of the superintendent.

In a recent review of the gold mining in California, in the Journal, I see it stated that the hydraulic mines gave fully two-thirds of the annual product of $17,000,000. I would observe that this includes hydraulic and drift mines, the latter producing at least one-third of that amount. No apprehension need be excited in regard to former suits at law involving the question of debris or tailings from hydraulic mines. Such suits were all quashed by the decision of the Supreme Court, and are doubtless permanently disposed of. The State Legislature at the last session appropriated a large sum of money for the purpose of enabling the question to be thoroughly gone into, and for the purpose of building extensive dams in the streams which receive the tailings of hydraulic mines. These dams prevent the flow of the debris over the tillage lands of the valleys. The report of the engineer employed by the authority of the Legislature to ascertain the area of land covered by the overflow of mining debris, and the depreciation in value of property caused by such overflow, states that the total area damaged on the Yaba River amounts to 15,220 acres, and that on Bear River to 8800 acres. The engineer further estimates that the entire depreciation in value of all the lands in the State from the above cause does not amount to $2,600,000. When we recollect that the mines referred to have been in operation for the best part of 30 years, or at the rate of about $86,666 per year, we shall not consider the damage as anything very serious. The amount of injury done to the farmers becomes remarkably small when compared with the gross products of the mines, which amount to $1,100,000,000. The Supreme Court when appealed to could not lose sight of this fact, and the immense interests involved in the working of hydraulic mines for 50 years to come and more, when they set aside the decision of the petty Judge Keyser in the case of the Little York. That decision, as it may be remembered, was in favour of the farmers whose lands had been overrun and doubtless damaged by debris. It was simply absurd to imagine that such ruling could stand, and that the judicial power would permit so vast and important an interest as that of the mining of the auriferous gravel of the State, with a yearly product of $17,000,000, to be discontinued at the instigation of a few petty farmers whose whole property would not sell for a sum sufficient to purchase one of the hydraulic mines now in operation.

In Arizona the mining developments have been something wonderful, the whole country appearing to be rich in mineral wealth to a degree that was unsuspected before. A very large amount of capital has been invested in that Territory principally by men from Philadelphia, New York, and Boston. The people of California have not seemed to understand the wealth which adjoined them; at any rate, the first investors came from elsewhere and are, in consequence, reaping a rich harvest. Recently the Hon. J. K. Luttrell closed the largest mining transaction yet negociated in Arizona for parties in the Eastern States. The mines purchased by him were the Belmont for $250,000, San Antonia $50,000, and the Washington Pool for $200,000. These properties were purchased from the miners who had taken up the claims and had only partially developed them.

The famous Silver King, in Pinal County, Pioneer district, has resumed paying dividends. The output from this mine has been extraordinary. On the 21st inst. I observe 45,000 lbs. of concentrations were sent by rail to San Francisco by this mine. I would carefully guard parties at home, however, against being led away by representations of mines in Arizona which have little or no foundation. I know of more than one mine that is continually advertised by the company that owns it, but it has not the merit claimed for it. Parties wanting information as to the propriety of investing in any mining enterprise in Arizona or California can readily find out the character of that enterprise if they will but take the trouble to communicate with me on the subject.

In reference to the case of the Richmond *v.* the Rickard Albion suit, I extract the following information from a Nevada paper:—"All the Albion locations are sustained, and the 'big vein theory,' decided in the Eureka-Richmond case by Judges Field, Sawyer, and Hillyer, is approved. The injunction is dissolved except as to a small strip commencing at a point at the easterly corner of the Albion No. 1 location, and extending thence at right angles to the course of the vein. This does not affect the Albion surface lines, but makes a little different line on the dip. This decision is that the rights of location on a vein on its dip is at right angles to its general course independent of surface lines. This is a substantial victory for the Albion Company."—*San Francisco, Oct.* 25. E. J. JACKSON.

INDIAN GOLD FIELDS.

THE MYSORE-COLAR AND DEVALAH-WYNAAD DISTRICTS.

SIR,—As a considerable amount of information appears yet to be required as to values, and as to the localities of the various properties already taken up, and, as a rule, the public have little or no means of judging as to the probable value of the lands—quantity, not quality, having been, apparently, up till now the main test of value—I propose endeavouring to supply some information on both points and the formation last week of the Rhodes Reef Company, taking over land with one reef running through it, and with 50 acres only yet at a price of 130,000*l.*, is the first really practical illustration of quality against quantity. The value of the land of all the companies, of course, really depends upon the acreage containing auriferous reefs. The knowledge of that in the Wynaad, as elsewhere, can only be obtained by degrees, and after careful surveys, sinking shafts, and testing the stone. That is only now being done (in the case of the Rhodes Reef, and perhaps one or two others, it has now been done). At the Mysore-Colar fields all that work was begun about six years ago, and has been done already, and the value of the reefs there definitely ascertained.

Years ago Mr. John Munday, an Australian gold mining engineer specially recommended by Mr. Brough Smyth for such work, was brought up from Victoria, he following in the wake of Mr. Lindon and other engineers; and after their united explorations and reports the Ooregum block, a tract of about 3¾ miles in length by ½ mile in breadth was selected. In sinkings and explorations a great deal of money had been spent; and, as a matter of course, arrangements had first been made with the Mysore Government—in whose territory the land is—that they would, under certain conditions, grant mining rights and concessions, that Government ultimately granting the exclusive right of prospecting and mining in the district.

After sinking near the Champion reef to a greater depth than the now historical "ancient miners" had ever got—capital, machinery, and organisation being with them totally wanting—the reefs were tapped and proved: assay reports giving an average of over 5 oz. per ton. Trial machinery was then erected to test the stone in quantity, and 26 tons yielded 68 oz. of gold, an average of over 2½ oz. per ton. Five well-defined reefs were traced, running nearly north and south, and, with their veins and dips, covering an acreage of ½ mile in width. By the terms of the concession only blocks of 2 miles could be taken up at one time, the Government wishing to see work done, thus affording labour to their teeming population and bringing capital into the country. Accordingly the one block taken up was at once subdivided into sections of 250 acres each. The concessionaires took up No. 2 section because it contained the deeper sinkings referred to, and formed the Ooregum Gold Mining Company of India, the first limited liability company for gold enterprise in that district. Three other sections were then taken up for the Mysore Gold Mining Company, and section No. 1 was sold; it now forming the land of the Nundy-droog Company. That block disposed of, another of equal size with portions of the same reefs—all tested and prospected over—was taken up, the Madras Gold Mining Company taking the southern part, the Colar Gold Mining Company the northern. Those companies secured the land at what may even already be considered merely nominal rates, the former company soon after its formation sold one-half of its land at the price paid for the whole.

The five reefs, with their veins, lodes, and constant outcrops, cover the whole of the two blocks, and each 50 acres of that land is worth quite as much as any 50 acres of the Wynaad land—so far as any testing or assays or reports go is of even greater value, so far as actual results have yet gone.

On the Ooregum Company's land—their rights now transferred to the Ooregum Gold Mining Company, registered this month in London—machinery is now at work, crushing from 1000 to 1500 tons of stone, which has in course of deeper sinking been mined out during the last six months, and that company is now getting up stone from under the 80 ft. level, from the same lode from which 9 tons were got, which yielded 27½ ozs. From private sources, and from the mining engineers, the reports are that the lode is from 4 to 5 ft. in thickness, and that the stone shows as rich as that previously mined. This has only recently been ascertained, the dip of the lode having been under the water level. A very suggestive fact is that the pumping from one sinking gradually drained off the accumulated water in the others. Stone from the surface which will pay for milling can be got in almost any quantity (see the Mysore Company's report and copies of letters from their mining captain made public this month), and that is the case over the whole of the concession. At the Oomegur Mines, however, the endeavour was to prove that under the deepest of the old sinkings the stone to be obtained held gold in quantity even larger than shown in the experimental shafts, and that has now been proved.

As to locality and climate, and as to transit and transport, all the Mysore-Colar land is at 3000 feet above sea level, on the same level and equally as healthy as the southern sanatorium, Bangalore; where all the year round, Englishmen can live and enjoy life, away altogether from excessive drought, and excessive rainfall, and from the fever regions. The land is within four miles of the Madras Railway, about six miles from a station. From the station to the reefs the land is nearly level and easily tramwayed, or easily macadamised. In the Wynaad (for without comparison the differences cannot well be pointed out or appreciated) transit is altogether another matter. "machinery is now on board a steamer off Calicut," that is simple and easy: the shipment and carriage from England to any western port, or Madras (save in monsoon time), is the smallest part of the business; from the coast to the mines is the difficulty, 50 to 80 miles over roads on which many times in the year even a dog-cart can scarcely get along, and bullock-carts are the principal or only conveyance. One part of the road is zigzag and a constant ascent for about eight miles up the ghaut, and after, as well as before that, a hilly and up-and-down a road as it is possible to conceive. For all those difficulties the Wynard companies are of course well prepared. the only plan to make certain of transit and arrival of machinery being not to put over 5 cwt. or so in any one cart; or all safely packed in well-cased wooden packages, none to weigh over 1 cwt., or if possible none over ½ cwt.; to start off the packages with gangs of coolies, two to a small package, three or four to a large one. After all, that mode of conveyance, with very careful dispatch and superintendence, can be made about as certain as per rail.

The Colar concessionaires have had and are having other lands surveyed, and the reefs tested (for the reefs do not end in the lands already taken up), and now probably 50 or 100 acre blocks will be sold, though at considerably enhanced rates. In less than two months further facts will speak for themselves, and the price even of the Rhodes Reef and its 50 acres seem small from the proved value of each 50 or 100 acres of the Colar land.

The titles to all the Mysore-Colar lands are similar and very plain—from the Mysore Government to the concessionaires (the deeds prepared by the Government solicitors in Madras, Messrs. Barclay and Morgan), and from the concessionaires to the different companies, either direct or through trustees or others. The titles are exclusive and indisputable.

As to reports on the land, the fact of native workings of old and recent date is worth almost any number of reports. Mr. Lindon reported reefs of gold-bearing quartz, Mr. Munday ditto, and one very rich reef with many veins or leaders. Mr. W. Bell Davis and Mr. John Harris reported five well defined lodes, two fissure veins, other five well defined reefs, gold in the stone showing about 2 ozs. to the ton; and the latest published report, that of Prof. Vazie Simons, states "all that is really required to make these mines equal if not superior to any in the world is a fair amount of capital judiciously expended."

A late Commissioner of Mysore wrote me recently—"I have had the quartz brought to the surface and tested in my own presence when I was commissioner of the division in whtch the mines exist. During last year I visited the district, saw the workings old and new, washed the soil near the outcrops, broke off quartz and pounded it

up, and in all cases there was gold visible. It is not in any of the stone patchy or in layers; in fact the point of the reefs is that they carry gold throughout." The companies now formed for mining in the Colar district are—the Nundydroog, with about 250 acres; the Oregum, 250 acres; the Mysore, 750 acres; Colar, 320 acres; Madras, 320 acres; all adjoining, all on the same set of reefs.

A. HAY ANDERSON.

CENTRAL RAILROAD COMPANY OF NEW JERSEY.

SIR,—The Seven Per Cent. Income Bonds quoted 91 to 93 would seem one of the cheapest in the market. The total amount is only 490,000*l.*, and precedes the ordinary shares of 4,120,000*l.* for dividends, therefore the Income Bonds represent less than one-eighth part of the shares. The price of the ordinary shares in New York is 78, equal to 81½ in London reckoning the exchange. As an investment the Income Bonds should be much higher, as if only 2 per cent. is paid or earned on the shares the Income Bonds would receive 7 per cent. The ordinary shares are dealt in at New York, and the Income Bonds in London, and investors on this side have not yet seen that when the Americans buy the shares at 81½ the Bonds should sell at par to 105. A similar anomaly I pointed out two years ago in the New York, Lake Erie, and Western Railroad Second Mortgages, and the Six Per Cent. Preference shares, both of which have since risen 150 to 200 per cent. B. E.

London, Nov. 18.

DON PEDRO MINE AND ITS MANAGEMENT.

SIR,—May I ask, through the Journal, for some information regarding the Don Pedro Mine? I know from private information that everything is going on well, and that the steam-engine sent out is being rapidly put into working order. But would it not be more satisfactory if some of the reports from Brazil were published, as of old, in the Journal, and thus let all the shareholders know what is being done, so as to allow them to judge for themselves how their interests are being looked after? It is well known that when the big wheel stopped working a large and rich lode was left in the bottom, and that it was only requisite to unwater the mine to bring the stuff to the surface. The steam-engine now being erected is fully capable to do the work, and good results ought soon to be obtained. Water has always been the trouble in the Don Pedro, but once that is got under, and kept so, there are, perhaps, very few mines which would return larger profits to the proprietors.

Warnford-court, Throgmorton-street. LARGE SHAREHOLDER.

THE DON PEDRO GOLD MINE.

SIR,—No one can accuse the directors or their friends at the mine with giving the patient shareholders too much information regarding the position of affairs. We were informed some time since that "the machinery had arrived," which news was highly satisfactory, indeed quite a godsend. By June, 1881, I hope this machinery will have arrived, and by November, 1881, will be in course of erection. Should such rapid progress be attained some youthful shareholders may live to know the result of its workings, if information is conveyed to the shareholders on the present expeditious scale. When some of the executive awake from their slumbers, and will kindly vouchsafe us a little information, if only once in six months, I am sure we shareholders shall feel highly gratified.

A SHAREHOLDER.

NOUVEAU MONDE GOLD MINE.

SIR,—I was glad to see a statement in the Journal of last week to the effect that the agent of the above company, accompanied by a director, had left England for Venezuela, and that the money for the purchase of the Nicupai Mine had also been forwarded per the Colonial Bank; but my object in troubling you is to ask if any of your numerous readers will inform me why the shares are so low in price compared with what they were some months ago, when the idea (only) of the purchase of this mine was in one's mind; but now the finishing touch is about to be put to the purchase, it seems so odd to me that they should be quoted at half the price they were then.

REASON.

CEDAR CREEK GOLD COMPANY.

SIR,—Can any of your readers inform me what the directors of the Cedar Creek Gold Company are doing? Birdseye Creek evidently is doing well and will soon be a dividend paying concern. Surely Cedar Creek could be reconstructed. It seems hard that 34,433 shares of 5*l.* each should be regarded as worthless. Any other concern, railway, bonds foreign or otherwise, would have the shareholders most petulant if treated with such indifference. Rossa Grande, too, 100,000 shares 1*l.* each, appears to hang fire much in the same way, through, I presume, the apathy of the directors. A SHAREHOLDER.

Portsmouth, Nov. 18.

NEW QUEBRADA COMPANY.

SIR,—Surely the long-suffering and patient shareholders of this company would be glad to have the latest news from the mine through the medium of the Journal. The recent discovery is the next most important event to the shareholders that has occurred during the past 20 years. Taking the produce of the new discovery at 15 per cent.—and it is likely to be much more—the 200 tons raised in one month would give, according to sale just made, 9*l.* 1s. 10½d. per ton, or 1818*l.* 15s. addition to the returns at little cost. This must materially affect the dividends of the company, and recoup the outlay and interest on the property. MINER.

Nov. 18.

PESTARENA GOLD MINE.

SIR,—I read with much pleasure "A Shareholder's" letter in last week's Journal, and thank him for the important information he gave with respect to the above company. I quite agree with him that there is a bright future in store for the Pestarena Company, but I should be glad for him to explain, if he can do so, how it is that the preference shares 3*l.* paid, and with nearly 3*l.* accrued interest due upon them, are practically unsaleable on the market, while the ordinary, which are over-ridden by the preference shares, and must wait many years for a dividend, are saleable?

A PREFERENCE HOLDER.

THE MORAY FIRTH MINING COMPANY.

SIR,—I notice in the Journal of Saturday last you publish a letter signed by Absalom Francis descriptive of this company's mine at Lossiemouth. I desire to call attention to the fact that the report referred to was not made at the instigation or by the authority either of the directors or their manager. T. F. WILEY, Secretary.

London, Nov. 17.

THE LEAD MINES OF DURHAM AND NORTHUMBERLAND.

SIR,—Competent parties will agree that the value of mineral properties depends on the quantity of mineral obtainable in the mines, and the conditions under which the ores are found. Where very deep sinkings have to be made, and the ground is hard and often very wet, a good deal of money is expended before the mineral is reached, and then it may be very expensive to work out and prepare the ores for market. On the other hand, where large quantities of mineral is known to repose close to the surface, and in a soft matrix easily and cheaply removed, the workings of mines cannot fail to be very remunerative.

One gentleman has recently made a fortune in this district; he leased a small lead mine, and when he had sunk a shaft a few fathoms below the surface came on the ore bearing strata or sill, carrying about 3 ft. wide, of solid galena. The ground proved also easy, and after clearing all expenses every 6 ft. of the vein removed was worth on the average 120*l.* This is not a solitary or isolated instance of very profitable mining in this remote corner of the country. In many of the W. B. lead mines 2 ft. to 3 ft. wide of solid lead ore is oftener the rule than the exception. This seems to me to be good encouragement for mining enterprise, and yet there are few public companies operating here. Doubless the distance from London will have something to do with our neglected state. As to quantity and quality of mineral, and the favourable conditions under which it is obtainable here, no other part of the country can compete with us, but as no publicity is given to the profits made by private individuals, &c.; and public companies are, strange to say, few, it is not generally known that a far better return may be made by mining here than in either Cornwall or Wales, where so much fuss is made about a matter that would be taken little or no notice of in these parts.

Nov. 17. A NORTH COUNTRY MINER.

THE MINERAL SPRING AT LEE, ILFRACOMBE.

SIR,—I have read with much interest your correspondent "R.G.S.'s" letter in the Journal of last week, as also the letters in our local papers. I have had a bottle of the water sent to London for analysis, and there is no doubt "R. G. S." is correct in stating that the water is not similar to the Bath and Cheltenham spring water, although the strata and the rocks are the same. The discovery of this spring will be a great thing for the town when it becomes known, and can be got at by a path down the high rocks, but I hear that a London company is at once to be formed by some mining gentlemen to purchase the property, and build a lodge house above the "Broad Ore" beach.

Nov. 18. A RESIDENT OF ILFRACOMBE.

TIN MINING EXTRAORDINARY IN CORNWALL.

SIR,—Having occasion to spend a few days recently in the vicinity of Par Station, I availed myself of the opportunity to ramble over some grand old hills and through the picturesque vales which are to be seen in that neighbourhood, and whilst so engaged my old zest for personally inspecting mining properties returned with renewed vigour after the expiry of over 30 years, since I exchanged the calm solitude of East Looe, except when enlivened by the news that some great catch of mackarel or pilchards had arrived, or awakened by a blustering south-west gale which might sometimes be seen tearing out the enormous stones of which the old sea wall was built, and tossing them about like pebbles, and but too often hurrying to an untimely grave many of those noble fellows who never hesitate to risk their own in the brave attempt to save the lives of others, the history of whose heroic deeds should be proudly handed down to posterity by those who have been eye witnesses to them for the every-day bustle and turmoil of city life. I was induced, in the course of my walks through Prideaux Wood, Curvear Moor, and St. Blazey, to examine several of the young mines in this district, for which the enhanced value of tin is causing enquiry to be made.

That these mines, or rather those who are striving to put them to work, may be encouraged to persevere, I will, with your permission, point to a few which came under my more immediate notice, trusting that the remarks now made may also assist some of your numerous readers who are interested in such matters to choose wisely in the selection of one or more of these, or others of the many promising mines in and near St. Blazey for the investment of a portion at least of their unemployed capital.

Permit me, however, first to express my regret that there should be such an enormous amount of capital at the present time in the hands of many individuals who, apparently, have not the slightest wish to utilise the same by employing their money where it cannot fail to increase, and thus promote their own as well as the public welfare, but rather prefer to bury their talent in a napkin. Investments in Consols and banks are but little better than this. But to return to my story. Passing through Prideaux Wood and Curvear Moor, in the highly mineralised and valuable estate belonging to Sir Colman Rashleigh, Bart., I noticed the position of, and several of the lodes in, the old St. Blazey Consols, now called, I believe, the Rashleigh Tin and Copper Mine, the South Prideaux Wood Mine, the East Eliza, the Lady Rashleigh Consols, Wheal Par, and the New Eliza mines, and on a future occasion I shall hope to be allowed to enter into some particulars respecting those first mentioned. For the present, however, I will confine my observations upon the mineral grants in this estate to the last—the New Eliza—as it is the only one upon which any work has been reeently done, although I understand some of the others will shortly be put to work also. This mine is situated in the decomposed granite adjoining the killas—a position well-known to be favourable for mineral—on Curvear Moor, having for its western boundary the great county cross-course, which runs from Crinnis on the south to the north coast of the county. It is about one-third of a mile north-east of the celebrated Wheal Eliza Mine, now paying good dividends (said to be 20,000*l.* per annum) to the shareholders. A short cross-cut or adit level has been driven up to one of the most extraordinary tin lodes that I have ever seen or heard of at so shallow a depth (3 to 4 fms. only) from the surface, and from this splendid lode—now over 10 ft. in width and not yet cut through—large rocks of tinstone from 2 cwts. to 5 cwts. each are being excavated daily.

This stone gave from 45 lbs. to 56 lbs. and upwards of pure tin per ton. According to assays recently made in London, and one made by Capt. S. Northey, of West Wheal Eliza Mine, on the 11th inst., gave 2 cwts. 1 qr. 14 lbs. of black tin per ton of stuff, evidently proving that the lode is getting more valuable as progress is made towards the south wall. A portion of the stone taken from, as well as some of the soil surrounding, the lode was vanned in the writer's presence, with such excellent results that he unhesitatingly accepts the foregoing statements as substantially correct; the latter (from the soil) reminds him of an old rhyme learned when a boy, of which he can only now give a very imperfect version, but as one line is especially applicable to the remarks, it is now quoted from memory as follows:—

"Cornwall, thou wealthy spot of ground,
* * * * * * *
Thy dross is lead,
Thy very dust is tin
Thy riches not without, are found within."

To resume. I was so struck with the importance of this magnificent discovery that I was induced to look at some of the other lodes in this valuable sett. From one, several fathoms north of the large or south lode, very fine specimens of crystallised tin have been taken, and may yet be seen, by permission, on the ground. One assayed by Prof. White, of Change Alley, Cornhill, gave at the rate of 8 cwts. of pure tin per ton of 2240 lbs., and on this no comment is needed. The New Eliza sett is held at 1-24th dues, and a rent of 50*l.* per annum merging into dues, and I venture to affirm that these terms, similar, I am told, to those on which other setts on this estate have been granted, are so fair and moderate that all who are interested in working them should show their appreciation of Sir Colman Rashleigh's liberality by doing all they can to speedily and fully develope their several mines, so that Sir Colman may soon derive substantial benefit in return for same.

Permit me, Sir, to remind those of your numerous readers who prefer mines which they can visit at any time within a few hours to those of which it may often be said, as their only charm, "'Tis distance lends enchantment to the scene," to go, examine, and judge for themselves of the value of this promising young mine, which bids fair to stand, and at no great distance of time, second to none in the county of Cornwall.

Before closing this letter I wish to add a few words respecting another very healthy looking mine, Wheal Elizabeth, situated at St. Blazey, in the killas formation, near to granite—as are, I believe, many of its immediate neighbours—and having the once celebrated old Fowey Consols to the east, Wheal Eliza to the west, Par Consols and other good old mines to the south, with St. Blazey Consols, South Prideaux Wood, &c., to the north, and the New Eliza to the north-west. An adit level has been driven here from 40 to 50 fms. in length, on a capital tin lode 3 to 4 ft. in width, yielding good work for tin most of the distance. A shaft has also been commenced, and is down to within a few fathoms of the adit end going west. Several assays have been made of the tinstone taken both from the adit and shaft. These gave, as I was informed, from 2 qrs. to 2 cwts. of black tin to the ton; and, judging from what I saw on the bank, I have no reason to doubt the correctness of these statements. The sett is held at 1-18th dues, and dead rents of about 60*l.* per annum merging into the same. I will only add that, in my humble opinion, this also is well worth the notice of investors in tin mines.

Having, Mr. Editor, the welfare and prosperity of the good old county at heart, I must ask your permission to conclude these somewhat discursive remarks by adopting the well-known Cornish toast as my *nom de plume*—

FISH, TIN, AND COPPER.

DO MINERALS GROW?

SIR,—In last week's Journal, speaking of the contents of the Mineralogical Journal, your able Cornish Correspondent says: "The same number contains also a paper by Mr. Readwin, *F.G.S.*, embodying a large number of additional facts in connection with his observation on mineral growth." Do minerals grow?—*i.e.*, as plant growth or by addition of external matter; and if minerals, then metals both common and precious. The question is asked not in an argumentative spirit, but rather to elucidate what may be inferred to be of curiously practical value. Further, if precious metals grow their growth are ascertainable by visual and measurable observation after the stone is broken from the vein matrix, *in situ*. If this is so there must be a hitherto unobserved growth of metals taking place in the tens of thousands of cabinet specimens, or, perhaps, it may be said, observed only by a few. Some of your many able correspondents can doubtless speak to the fact, which would perhaps instruct and interest other readers of your valued Journal as well as—

Y. X.

DEVON FRIENDSHIP MINE.

SIR,—It is very satisfactory to see that the operations at this great mine are to be extended on a large scale, the result of which cannot fail to be highly remunerative. Enormous returns and profits have already been made, and the south parallel lodes are unwrought as yet for hundreds of fathoms. One of these south lodes recently opened on at surface is full 6 ft. wide, containing arsenical mundic and black copper ore, and is of such an appearance as to almost induce one to say that it will certainly make large deposits of rich copper ore in depth. Another south lode (called Bennet's) has been proved to be very rich. All the lodes yield largely of arsenical mundic, which may be said to be inexhaustible in the mines. Great profits can be made from this at once, as is now being done at Devon Great Consols. Until recently the dues paid were 1-10th and 1-18th, now there is a new lease at 1-30th. The railway brought close at hand within the last few years will greatly reduce the price of carriage and labour, and boring machinery will open the ground much quicker and at less expense. I have known this splendid property for many years, and I congratulate those who have had the discernment and the good fortune to secure it. This is not a speculation, but a fine safe investment.—*Tavistock, Nov.* 17. DEVONIAN.

SOUTH WHEAL FRANCES MINE.

SIR,—The striking revelations made at the meeting of this company on Nov. 2 render it somewhat interesting to compare the statements made a year ago to those made at the said meeting. It will be well remembered that Messrs. Watson Bros. pointed out in the Journal early in November last year the dangerous financial position into which this company was drifting, and explained that an outlay of something like 20,000*l.* or 25,000*l.* was required to bring the mine into proper working order, the machinery, shafts, ventilation, &c., being in a very deplorable condition, and consequently the dividends which caused so much enchantment, and of which there was so much boast at the time, were not justified. In short the mine was more in need of a heavy call than able to make a *bona fide* dividend. To this Captain James, the manager, replied in the Journal of *Nov.* 15, 1879, as follows:—

SIR,—I beg to inform the shareholders of the above mine generally that it continues to look well, and that there is no alteration in any of the bargains since last reported. We continue to sell the usual quantity of tin ore at an advanced price, and a substantial profit will be shown at our next meeting (about three weeks from date). We are pleased to say there is no foundation for many of the remarks made by Messrs. Watson Brothers in last week's Journal respecting the above mine. No encroachment has been made on the West Basset boundary, nor anything approaching it. This baseless rumour is, therefore, unworthy of further comment. No inspecting agent has ever made a cross section of this mine; we have a transverse section of it, which admiring practical men have been allowed to copy, but how such a copy can be rendered unfavourable in the opinion of any practical miner we are unable to fathom. We consider it to be one of the most favourable features in connection with the future career of the mine. All questions affecting the interest of this mine have been discussed again and again at our general meetings, and verbatim reports sent to every outside shareholder, and if they are not well informed upon all vital points at issue, and quite capable of forming their own opinions, the executive cannot be held responsible for any neglect on their part. It is true Pascoe's shaft is not a good one, but it is quite as good as one half of the shafts in the district, and we venture to hope that the adventurers who have been receiving dividends from the mine for two years and upwards will acknowledge the result to be very satisfactory. The condition of the shaft has been fully discussed at our general meetings, and its defects pointed out by the agents of the mine, and not by casual inspection; indeed, it is all but impossible for any inspecting agent to give anything like a correct idea of what should be done.

It is also true that a new shaft is being sunk in the western ground, but it is not true it must be sunk 180 fms. to cut the flat lode, or that it will take five years to accomplish this object. The 70 fm. level is driven almost under this shaft on the south lode, and is worth 15*l.* per fathom. As soon as the boiler is in position we anticipate letting a special contract to a boring machine company, who will guarantee to sink 70 fms. in twelve months, when a communication will be effected with the above level. We shall then be able to drive and stope sufficient ground on this lode to pay for the further sinking of this shaft to the 160 fm. level, where we expect a junction with the flat lode, and where we expect good results. No separate pumping-engine will be required for this shaft for years to come, as the new winding-engine will be sufficient for both purposes—pumping and drawing. During the past two years 5000*l.* has been spent in laying down tin-dressing floors and other necessary plant, and in the same period more than 10,000*l.* will have been distributed in dividends (including the next dividend) with tin at 35*l.* per ton. Notwithstanding the great outlay which has been made, and is being made, we anticipate making a clear profit of 12,000*l.* for the year (equal to about 1000*l.* per month) in spite of all obstacles. We have no desire to blow our own trumpets, or in any way to puff the mine up, but we feel it a duty incumbent upon us to give the other side of the picture painted so darkly by Messrs. Watson Brothers.—*Redruth, Nov.* 13, 1879. A. T. JAMES.

At the meeting of Nov. 2 a letter (written a few days previous) from Capt. James to a shareholder was read, as follows:—

SIR,—If you are still a shareholder in the above mine I advise you to sell at once, for the following reasons:—The mine is not looking nearly so well as it was, our best stopes (reserves) are nearly exhausted, and the bottom levels are not half so valuable as they were, and I shall retire from the management at the coming meeting. Should you decide on selling your interest will you kindly telegraph to me at Redruth, and I will do the best to realise the highest price for you. Then in his report presented to the said meeting he said, we still continue to spend large sums of money in putting the mine in a thorough efficient condition, and we are inclined to think it will take eight months more to accomplish this desireable object. We have paid in the cost-sheet presented to-day 650*l.* in extra labour to masons and engineers, and about 800*l.* in extra merchants' bills, together 1450*l.* Broad's winding-engine is now ready to work, and a new skip-road has been fixed in Marriot's shaft, from top to bottom; new shears and shaft tackle are all ready waiting to be fixed in their respective positions. The new engine-house in the west part of the mine is completed, and the engineers are engaged putting in the engine. The prospects of the mine are much the same as they were at the last meeting, and after a thorough renovation of shafts and machinery we shall again enter the Dividend List.

These statements require no comment, as they substantiate in the most positive manner possible the explanation given by Messrs. Watson Bros. a year ago; and although their remarks respecting the encroachment on the boundary were then repudiated by the manager in what then appeared to be only very strong but now appears to be startling language. He (Capt. James) said this baseless rumour is not worthy of further comment; and shortly after we find the lord of the land coming down on him for 500*l.* damages for encroachment on the boundary. Then, respecting the plan, he said no inspector had ever made a cross-section of the mine, &c. How, then, was the true position of the mine conveyed to these gentlemen a year ago? Certainly not by copying the one at the mine, which he says has been admired so much, but was simply a rough hand sketch, and conveyed evidently a correct idea of the workings. Then again he said, how a copy of our plan could be rendered unfavourable in the opinion of any practical miner I am unable to fathom; we consider it one of the most favourable features in connection with the mine. Well, to that I say in working a course of ore we are fast approaching the boundary which is about to put a sudden stop to large dividends is the most favourable feature in a mine that would most certainly be very true.

Now I think if any one will connect these statements with the fact that Capt. James has resigned and will have nothing more to do with the mine on any consideration, he must come to the conclusion that the concern is really in a deplorable condition. He (Capt. James) gave as his reason for leaving the great depth of the mine, and consequently a shareholder proposed to relieve him of his underground duties, but retain him as general manager, to which he (Capt. James) replied: "Nothing will induce me to stop," from which we infer there is some other reason for his leaving, and we also very strongly suspect from what we know of the mine that it is the one

given—its deplorable condition; and we believe instead of requiring eight months as stated in the report to bring the mine into a proper state it will take years.

I have no interest whatever in putting forward these remarks, but as there appears to have been a great many drawn into the concern, and are likely to sustain a heavy loss, I think the outside shareholders of which Messrs. Watson Brothers complained last year, have not been fairly treated; in fact we think it cannot be too strongly deprecated to advise one portion of the shareholders to sell, and to keep the general body thereof in ignorance of the real condition of the mine; I perceive further strong grounds of complaint in this direction in the statements of the last meeting which were published in the *Mining Journal* last week. At the meeting some remarks were made respecting the manager trafficing in shares; for my own part I should never think of investing in a mine where the manager made a common practice of it, especially in the mine he managed, and I hope the public will also oppose all such proceedings in the future. CORRESPONDENT.

GUNNISLAKE (CLITTERS).

SIR,—I noticed, when reading a report of the meeting of this mine, one of the commlttee retorted on one of the attacking party (who I suppose was some local merchant), "Why don't you keep to your own mine?" I suppose dog does not eat dog. Now I want to know if our mines in Devon and Cornwall are parcelled out to merchants and agents with a code amongst themselves not to invade each other's preserves. I am satisfied the right note was struck at Clitters meeting, and the sooner committee-men or directors are stopped supplying materials to the mines the better will it be for shareholders.

Nov. 17. J. N.

GUNNISLAKE (CLITTERS).

SIR,—In the Journal of Saturday last "A Shareholder," in the concluding paragraph of his long letter, says—"I was not present at the last meeting, but at the previous one out of 730*l.* merchants' bills about 700*l.* was supplied by the committee." Will you permit me to say that this statement is untrue? THOMAS HORSWILL,

Nov. 17. Auditor of the Company.

CLITTERS MINE.

SIR,—As the statements of "A Shareholder" in reference to this mine in last week's Journal are utterly untrue and misleading, I should esteem it a favour to be permitted to refute them through the same medium he used to propagate them. "A Shareholder" wishes it to be understood that he attended the meeting held in June last, when, with a reckless disregard for truth, he says—"Out of 730*l.* for merchants' bills 700*l.* were supplied by the committee." I need only say that not one-third of that amount was supplied by them, as anyone can ascertain who cares to examine the company's books. But "A Shareholder's" motive for making misstatements is plainly visible when he deprecates the payment of 1s. per share as being only 3 per cent. Everyone who cared to inform himself of the facts of the case would know that the profit shown at the last meeting was 607*l.* after putting aside 200*l.* towards the thirteenth month's cost; and they also would know that this profit was derived from the sales of ore of the last two months of the account, the sales for the first two months—from various causes—being only sufficient to pay costs. Moreover there came into this account extra charges for lease, rent, surveying and mapping the mine, &c., of over 150*l.*, so that fairly reckoned the profits were more than three times 3 per cent. Thus "A Shareholder" stands convicted by the facts themselves of wilfully or carelessly in the one case overstating three to one, and in the other understating to the same amount. "A Shareholder's" reference to packed meetings is beneath contempt—it is a libel on common intelligence. The idea of a regular four-monthly meeting held on the mine, where, within a radius of 20 miles, probably two-thirds of the shares are held, being a "packed meeting" is so utterly absurd as to find a place only in the heated imagination of the one who makes the suggestion.

The cause for these and kindred attacks we think may be found in the fact that this mine has passed the call-making period, is well opened up, has ample machinery erected for every required purpose, has 40,000*l.* worth of reserves opened up, and has commenced paying dividends. Doubtless every device will now be resorted to by unscrupulous persons to depreciate the value of the shares that they may enter into the reward of those who for so many years have borne the burden of bringing the mine into its present efficient state; but if the present shareholders be wise such tactics will meet with deserved failure. A SHAREHOLDER FOR 13 YEARS.

MINING SHARES AND DERWENT MINE.

SIR,—The market value of shares in solid lead and copper mining companies, despite the fluctuations of the metals in price, is to me a great mystery. How is it that Panulcillo and Rio Tinto Copper Mines, with enormous capitals, which pay dividends this year of only 2½ per cent., and for the first time, are at their present very high prices? How is it that the shares of Great Laxey and Van Lead Mines, with capitals of about 60,000*l.*, and subject to heavy royalties, are at such premiums that they only pay about 4 to 5 per cent.? In none of these shares can any further large rise be looked for, even if metals should, as people expect, rise considerably. In three of these cases the shares are already quoted at large premiums. And how is it that shares of such mines as Roman Gravels and Derwent are at such poor prices? The shares of the former, which pays dividends, and has paid very largely, are at a small premium; those of the latter at a discount. So many mining properties are complete delusions that really first-class properties, honestly managed, seem to have to pay by the low value of their shares for faults not their own, till on a sudden the public wake up and buy in at any price. This will be so with Derwent. The 68 cross-cut, it is confidently expected, will find the north vein rich in the little limestone, and this may now be cut any day. The 74 rise will also almost to a certainty discover a rich and large body of ore in the little limestone on the Burnshields-haugh vein. This is also daily looked for. In the district both of these points, of immense importance to the mine, are regarded as certainties. The little limestone is considered far the best sill for productiveness in all the adjoining mines. If they turn out as fully anticipated they will enormously increase the value of the mine. The first alone will give two miles of virgin ore ground; the second will open up a part of the mine hitherto always found very productive and rich. The 95 east, on the middle vein, now a productive level, worth over 1 ton to the fathom, is rapidly being driven underground, which in higher levels, and less than 40 fms. in advance of the end now worked, has yielded as much as 5 tons to the fathom. This splendidly rich ground should be reached by hand labour in about five months. The lode in this level extends for about 1¼ mile in virgin ground.

I have read the report of the directors of Derwent, and also their accounts, and I think the public must be frightened by the present low price of lead, or else how is it that these shares are not already at a large premium? The mines are of vast extent; they have since 1834 produced over 900,000*l.* worth of lead from only a small part of the property; and last, and not least, they are freehold, subject to no vexatious royalty or working covenants. They are managed by three competent and practical directore, largely interested in the success of the property. Since last year a great stride forward has been made in these mines. The returns have been increased 50 per cent., and now average over 30 tons of rich pig-lead and 44 tons of lead ore per month, containing a good deal of silver. Great as is this increase, in three months from this time a similar large increase in the returns is almost a certainty, as may be gathered from the agent's report and speech reported in your columns, and this increase, large as it is, will so soon as the 95, on the middle vein, has got under the rich deposits in the level above, be again considerably increased.

Two things only suggest themselves to me for the more rapid development of this mine. Why should not the directors, now that they have the freehold, sell some portion of our vast property on fair and moderate terms to a company? The extent of ground is large enough for many paying concerns. Why should not the directors use boring machinery even more than they do now? Time is in this respect but another word for money, and during the past two years the great value of machinery has been amply proved in these mines, where some of the ground, being very hard, is admirably adapted for this purpose. The value of machinery is also now only about half what it was, and people have found out how to work it more economically.

From what I have said (and the reports and accounts will substantiate my remarks) everybody must see that this property, quite apart from the changes in the lead market, will before six months are past enormously increase its monthly returns, and so doing will decrease its deadwork. Much of this last work has been carried out to the great present and future good of the mine during the year now over. Add to this very great and certain increase in the returns of lead what is now so confidently anticipated, a fair rise in the market value of lead, and on the modest capital of 48,000*l.*, unclogged by any royalty, large dividends must soon inevitably follow.

To those who wish to profit by a depression before it is wholly past, I suggest a careful perusal of the reports and accounts of this mine for the year just over. I will only add that the silver itself adds very substantially to the returns (I think it added about 2*l.* 10s. a ton to the lead), and that the accounts show a balance of over 2100*l.* to the credit of the company. SHAREHOLDER.

THE CALLINGTON DISTRICT, AND ITS MINES.

SIR,—Most people connected with mining are always best pleased when they hear of any good turn up in their own district. The Callingtonians, after several years depression, have a brighter prospect in view, for there is another rich bunch of silver discovered at Wheal Fortune (late Queen Mine); they have not done sufficient on it yet to be able to judge of its value. I have seen some of the ore brought to surface; the branch is full 4 in. wide, and but for the promptness and ability of Mr. Dowling, jun., the purser of the mine, his father would have been lured out of a great part of his interest. But now as they have at their head Capt. Knott, of great renown as a silver miner, as their manager they have no doubt of success. Lady Ashburton is also a very promising young mine; although only 15 fms. deep they have a lode 2½ ft. wide, composed of fluor-spar, quartz, sulphurous and arsenical mundics, yellow copper and grey silver ores, a very splendid looking lode. Some of their picked samples produced as much as 400 ozs. of silver to the ton, and, as they are nearing a cross-course, they may reasonably expect an improvement. The Tunnel sett is about to start afresh by a limited company; I think this one of the most promising setts in the county, It contains eight parallel lodes, and includes the Wheal Langford, Wheal Brothers, and Wheal Fortune silver lodes, Silver Valley, and the Good Luck tin lodes, and the Prince of Wales copper lode. The stratum is a blue clay-slate or killas adjoining the granite range of Kitt Hill. The sett is ¾ mile square in a slope facing the south, and bounded on the south by Wheal Langford and East Cornwall, west by Lady Ashburton and Wheal Florence, north by East Cornwall, Great Consols, and Kitt Hill, east by Silver Valley and Wheal Brothers. The latter has produced the largest mass of silver ever raised in the West of England. I have no hesitation in saying if this property is properly developed it cannot but be remunerative to the proprietors.—*Callington, Nov.* 17. JOHN BUCKINGHAM.

LEADHILLS MINING COMPANY.

SIR,—I have read with great pleasure the report of the yearly meeting of this company in your valuable Journal of last week, and after reading it I cannot make out how it is that its shares are so low. They surely ought to be far better. The property is very extensive, has capital prospects, has paid in the last four years 15,000*l.* in dividends, and does yield each month about 140 tons of lead ore. No doubt the low price of lead and the enormons royalty are against this mine, but these are only temporary difficulties. If the directors only stick to it we are sure to get our royalty reduced to something more like reason. Lead, too, will sooner or later go up to the good price of a few years ago. Still in the face of these drawbacks the mine is vigorously worked and developed on a large scale. Some 2000*l.* has been spent during this last year on necessary improvements for the future benefit of the shareholders, and even with that the costs were reduced by some 900*l.* Had this 2000*l.* not been so spent we should have wiped out the debit of two years back, but in the long run we shall be gainers by that expenditure. I wish our directors would promptly use boring machinery; this would save us both time and money, and our managing director must surely be well aware of this fact. If the price of lead should improve we can now largely increase our output; even at the present price, if we choose to largely increase our monthly returns, a dividend could be soon paid, but even a dividend may be bought too dear. Shareholders forget, and others do not know, that in spite of the drawbacks of bad prices and a very heavy royalty, the profits for the past year were nearly 3000*l.*, or equal to a dividend of 2½ per cent. for the year. This profit was not divisible simply because the year before had left a debit, which it has nearly wiped out. Even now I believe the monthly profits are upwards of 3000*l.* We have also a large stock of pig-lead and lead ore, and this is all paid for. There is here no overdrawn account at the bank, as with many mines. The affairs of the company are carefully managed, no bad debts are made in our ore sales, and our smelting works and dressing-floors have been made much more effective and economical, and what is, I think, of the very greatest consequence is that our manager has a very large stake in the company.

I think one reason why our shares are not more sought for is this. We have only monthly reports, and our ore is sold in Scotland, consequently it is but seldom we see any account of what goes on, or what is still more important, it is only from the reports of the meetings that we gather what has been sold, and at what price. Why should not our reports and sales of ore appear in your columns as often as those of the other large producing lead mines? Depend on it in these matters there is no criticism so keen and so effective as that which springs from publicity. Where nothing is known people think the reason is the matter will not bear the light. This is the largest British lead mining company I believe; at least, I cannot find the name of any larger one in your columns. Why should it not have a publicity equal to its importance? We see accounts of very small concerns in your valuable Journal each week, but about the doings of this great company we are, as I think, foolishiy kept in ignorance except at long intervals. HOLDER.

WHEAL RUSSELL, TAVISTOCK.

SIR,—We read in your valuable Journal a great deal that is truthfully written of the revival of Mining, and the success attending several enterprises in the Tavistock district. But very few of your readers in London seem to be interested in, or to hear much of, Wheal Russell, which is quite a local favourite. It is carefully managed; the shares are all remarkably well held; the mine is situate in the centre of a rich copper district; it is worked cheaply, by water power; one or two good points are being developed; and a valuable property is being opened out. I learn an important addition to the sett has recently been secured; and I read in last week's Journal of the great and almost fabulous results at one time attained at East Wheal Russell, which is, I believe, the adjoining mine. Under these circumstances, I am rather surprised at our not hearing more of the mine in London, and that full reports are not published, and the shares named in your market quotations. Wheal Russell is worthy of vigorous working, and worthy of great expectations.

X.

NORTH WALES SLATE QUARRYING.

SIR,—Your correspondent "Viator" does well to call attention at the present time to slate quarrying enterprise, and he is quite right in saying that it is impossible to suppose that all the good slate rock in North Wales has been discovered and is being wrought. In proof of this I may state that I was staying in the Principality for a few days last summer, and I observed that a very fine new quarry (as it seemed to me) was being opened near the terminus of the North Wales Narrow Gauge Railway at Rhyd-ddu, Carnarvonshire. From the enquiries I then made it would appear that there is every probability this will now become an important slate district, the great drawback hitherto having been the want of railway communication, which has, of course, retarded all quarrying operations.

Speaking of slate quarries, I was truly grieved to see the condition of those in the Nantlle district, with their vast and accumulating mass of slate debris deposited for want of tip room on the most valuable slate rock, which is thus rendered unworkable, and I was much surprised to learn that the quarry owners resisted an application made to Parliament some 20 years ago for a tramway to remove this rubbish, and that they also opposed a similar application made last year. The opposition of the Nantlle quarry owners to all improvement will, however, do good to the new slate district referred to, as the stoppage of some, at least, of the large Nantlle quarries can, as they are at present worked, be only a question of time. TOURIST.

NORTH WALES SLATE QUARRYING.

SIR,—I shall feel obliged if you will kindly allow me, through the Journal, to take up the challenge of your correspondent "Viator" in last week's issue, as I wish to dissipate the inferred idea that there are no profitable quarries except those named by him. For the present I will confine my remarks to Carnarvonshire. The slate-producing strata of this county may be divided into two great zones—the Cambrian and the Silurian—the former making its appearance near Clynog-fawr, Carnarvon Bay, the main body of these rocks passing north-east through Nantile Valley, Llanberis, and Bethesda terminating or disappearing near Aber, on the northern coast, between Bangor and Conway; the latter or Silurian zone being chiefly represented by two areas, the first commencing near Criccieth, on Cardigan Bay, passing through the Pennant Valley and Rhyd-ddu terminating northwards at Llanfair-fechan, and the second starting at Y-foel-fraw Mountain, near Diffwys, and stretching northwards through Dolwyddelan Lledr Valley, Capel Curig, and Llanrhwchwyn. The quarries opened on the Cambrian range embrace those of Penrhyn, Mr. Assheton Smith (Dinorwig), Alexandra (Duke of Sutherland's), and the Nanttle quarries, notably Dorothea, most of these fully developed, and some, particularly at Nanttle, nearly worked out, although they have for many years been very productive. Quarry Enterprise on the Silurian ranges of rocks I have mentioned, has not had up to the present time a fair trial in consequence of want of railway communication, capitalists naturally being afraid of opening quarries in the face of the heavy transit expenses to a distant seaport or railway station, but the North Wales narrow gauge railway now having been made as far as Rhyd-ddu, and the London and North Western Railway system having been extended from Bettws-y-Coed to Festiniog, has removed a most serious drawback to quarrying operations on the ranges of rocks just referred to, and in which there is no reason geologically why as successful undertakings should not be prosecuted as at Festiniog, where the slate-beds or rocks are also of Silurian age.

At Rhyd-ddu, near Llyn-y-Gader, the advent of railway communication has caused the starting of several quarry enterprises, the most prominent of which is the Glan-r-afon Quarry (now producing slates of very superior quality), which promises to be as successful as any in the Principality. The Clogwyn-y-gwin property, south of Glan-r-afon, also promises good results. Very lately experts have proved the veins in the Glan-r-afon property to extend south-westwards, past Llyn-y-Gader, into the head of Pennant Vale, and no doubt they will be found as far south-west as Criccieth. The successful results at the Glan-r-afon Quarry should stimulate operations in the Pennant Vale, where, especially on the eastern side at the head of the Vale, there is a fine field for quarry enterprise, the Vale, moreover, now possessing railway communication with Portmadoc *via* the Portmadoc and Gorsedda Junction Railways. When the North Wales narrow gauge railway is carried through Beddgelert to Portmadoc a field for quarry enterprise will also be opened up on the western flanks of Snowdon and Y-Aran, where discoveries have already been made of the existence of fine workable slate. The slate quarries in the neighbourhood of Dolwyddelan and Lledr Valley being now supplied with the necessary railway transit to Conway or Portmadoc merit proper development. I consider that there is a great future for quarry enterprise on the zones of Silurian slate rocks I have enumerated as the Cambrian deposits of Carnarvonshire, as well as those of the intermediate neighbouring Silurian deposits at Ffestiniog, in Merionethshire, are becoming exhausted, and the expenses of working quarries in them are getting so great that they must eventually cease to be lucrative undertakings. Quarry investors should seriously turn their attention to the promising fields of operations alluded to.

Nov. 17. SILURIAN.

[For remainder of Original Correspondence see this day's Journal.]

CENTRAL FOXDALE MINES.—QUARTERLY REPORT.

Nov. 16.—**Engine-Shaft**: The deepening of this shaft is being maintained at a good rate, and the only change, if any, in the ground is that it is becoming more compact. I also notice strong faces of lead ore crossing the shaft obliquely, which evidently come from the lode. In the 120, east of engine-shaft, on the north part of the lode, I am glad to announce a further improvement, the lode now producing fully 2 tons of lead ore per fathom; this end has now passed through a long section of productive ground upwards of 20 fathoms in length, which speaks very favourably for the mine in depth. Two stopes over this level, one on north and one on the south lode, average a yield of 15 cwts. of lead ore per fathom respectively. In the 105, west of engine-shaft, the lode being in disordered ground is very fluctuating, producing good stones of ore at times, but not of any commercial value. We have reason to believe we are nearing the caunter lode, when a favourable change may be looked for. In the 105, east of cross-cut, on the south part of the lode, but little has been done during the month, the men having been engaged in securing a big stull, which is now completed, and driving will be resumed; the lode in the end is worth fully 1¼ ton of lead ore per fathom. In the 105, east of No. 3 sump, the lode is very fluctuating in value, and at present produces saving work only; in order to push on this end the number of men have been increased from four to six, as this is our pioneer level eastward. Two stopes in this level, one in the sole and one in the roof, produce 1 and 1¼ ton of lead ore per fathom respectively. In the cross-cut, south of the 90, east of engine-shaft, although nothing of importance has as yet been met with, there are evident signs of a lode being near at hand, as we meet small branches carrying lead ore. The machinery throughout the mine is in fair working order, and all operations are being pushed on as fast as possible, but owing to the very severe weather our dressing operations have been hindered, particularly at night, when we do all our crushing. Up to date the returns of ore amount to 18 tons, which has been sent to Douglas stores, making the stock towards another sampling up to 58 tons.—JOHN GARLAND.

SOUTH CAMBRIAN MINE, CARDIGANSHIRE—SPECIAL REPORT.

Aberystwith, Nov. 17.—The dressing and all other machinery at this mine having now been completed, and having stood the test of two months actual work, I am happy to report to the shareholders and all others interested that this mine has now got a field of machinery which will challenge competition or comparison with that of any mine in the kingdom, both for economical working arrangements and for the efficiency with which the ores are separated and dressed, and the small percentage of escape and loss in the slimes. I have now a large parcel of ores, some 40 or 50 tons, dressed and ready for market in the store bins, the sampling of which will be proceeded with this week. In the mine itself we have silver-lead opened upon to the extent of 40 fms. in length and 15 fms. in depth, and which I value at 15,000*l.* at the least; and, with the fact that we have before us a guinea—to quote Capt. Francis's words in a former inspection and report, the equal which he never saw in his life, and which he said could not deceive, but must be the cover or overlie of an immense body of ore, I think, Sir, the time has now arrived when I can say without doubt, and without fear of contradiction, that the successful future of this mine is now beyond question, and I have the great pleasure in saying this as I am not aware of a single share being on sale in the market my words and opinion can have no pecuniary effect. During the progress of this mine I have been amused, and sometimes—I confess it—much hurt by the reports I have seen and heard about this mine. Sometimes it has been a bold assertion in your paper that we should never find ore enough for a sample for the British Museum. Then, again, our machinery was put up for show; then that the machinery was very fine, but what was it to do; and, last but not least, in the last notice of the South Cambrian Mine your North Wales, Salop, and Cardiganshire Correspondent, in reply to one of the shareholders, asked him not to shout until he was out of the wood, which last is both very good and very sage advice to give, and tells immensely in favour of the knowledge and wisdom of the giver. As all these reports have been read and commented upon from time to time by our shareholders—but I am glad to say without in any respect shaking their faith in the mine or its management—I can now with confidence say that they have a mining property in its prospects second to none in the kingdom, and that your correspondent, who would rather hear about dividends, and not so much about macninery, may be gratified to his heart's content; and I can assure him that no mine can pay good dividends without machinery constructed with a view to economical working, and that with the utmost efficiency.—ANDREW WILLIAMS, Mine Manager.

EAST DEVON CONSOLS.—This mine is opening up far beyond the most sanguine expectations. An improvement has taken plate in the adit, the lode producing much more copper ore. The composition of

the lode is everything that can be desired, and presents the most promising appearance for the production of mineral in large quantities. There is no doubt in the minds of experienced men that a very valuable mine will be opened up in depth, the course of ore being driven through in the adit warranting this opinion.

REPORT FROM CORNWALL.

Nov. 18.—It is always well for investors in mines who may not be in a position to obtain personal information respecting the causes of individual ups and downs to bear in mind that there may be more reasons than one for a fall as for a rise. When prices of metals are low or drooping then we naturally expect prices of shares to follow suit; but it is not so often that we see, as in the case of East Pool, a serious fall in prices directly in the face of a rising metalmarket. Naturally this has given occasion to many rumours, some (and these though most distant) of a decidedly disquieting character; there seems, however, no reason to assign the cause to anything beyond the realisation of a large portion of the interest of a prominent shareholder. The natural effect of throwing something like 1000 shares upon the market is sure to be a temporary depression, quite as serious as that under which East Pool has suffered. All depends, for the time, upon the amount of floating capital at hand to absorb such a new supply for investment; and with a dull market generally the effect has been greater than it would under ordinary circumstances have been. There is nothing that we hear of in the condition of the mine to indicate a failure of resources, and of course every shareholder is always at liberty, for reasons that may appear good to him, connected with the mine or not, to realise his interest if he so chooses. Probably we shall hear more about this matter at the meeting on Monday week, at which a 20s. dividend is anticipated.

We shall very shortly, it is expected, have something definite about the South Frances and West Frances amalgamation (West Basset, by the way, by the aid of the Darlington drill is being very rapidly developed in its best ground). The sooner the better, for this state of uncertainty is good for neither. Nothing could be clearer and more cogent in its way than the opinions in favour of amalgamation expressed by Capts. Rich and Rosewarne as practical men. The reasons assigned by them in full detail are precisely those which weighed with us in expressing our opinion in favour of the scheme—the desirability of uniting contending, or at the very least divergent, interests, and the greater economy that would arise from a joint development and the fusion of their respective plants.

It is understood, however, that the committee have decided practically the question by coming to an opinion adverse to the amalgamation, holding that the independent existence of South Frances will be best for the interest of that mine. There was a difference of opinion, it is true, but the anti-amalgamation view is stated to have been held almost unanimously; and this being so it is unlikely, as matters now stand, that the adventurers would be inclined to come to any other conclusion. We still hold that this is a mistake, and see some reason to fear that the relations between the two mines will not be at all improved by the failure of the efforts made to effect their union. Better, indeed, the idea had never been started.

Being perapatetic the Mining Institute holds its Exhibition this year at Truro. It is rather late in the season—Dec. 8 and 9—but there will, doubtless, be a good display for all that, and the capacity of the Truro Town Hall, the selected place, is such that it will be able to afford every desirable convenience.

We are not at all surprised at the favour which is now, although somewhat late in the day, being shown to the Tavistock district. Devon, indeed, has from various circumstances been left too much in the cold of late years. Its mining operations have dwindled and dwindled until the comparatively few points at which it has been carried on have become isolated, until the only locality in which it can really be said to be fairly alive is that in the neighbourhood of Tavistock. Elsewhere iron and manganese have chiefly taken the place of tin and copper; and even the promising attempts which have been made to develope the really wealthy mineral district of Combe Martin have produced practically no result. There are traces not only of ancient mining, but of many modern mining enterprises nearly all round Dartmoor, in some of which at any rate great returns were produced from shallow workings, but these districts now are all but absolutely idle, and even so far as the number of points of operation is concerned that of Tavistock is in no way like its former self. Here, however, there is distinctly revival—a revival which is intimately associated with the name of Watson, and from which great things may be anticipated.

Now, we are glad to find the historic name of Wheal Friendship again to the fore in association with that of Mr. Murchison, so long known in the district. There was a time, and that not so very distant either, that Wheal Friendship was about the best known copper mine in the West. It was one of those selected by Sir Henry de la Beche for special comment in his report on Devon and Cornwall, and its water-power in those days was the most marvellous and complete English mining had to show. Circumstances have been somewhat against it, in common with many other once notable concerns of late, but there is every reason to anticipate here as in so many other cases a favourable resuscitation.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Nov. 18.—In compliance with the request of "Looker On," and in the hope that they may interest other readers of the Journal, I give a few condensed particulars of mining in Cardiganshire last year. There were 44 mines in all in work last year, which were eight fewer than the number worked the year before. One of these mines—the Cambrian—is described as a copper mine, and one—South Darren—as copper and lead. There were 11 returned as lead and zinc, and 20 as lead alone, the rest being described as silver and lead. Of these mines 30 produced 5079 tons of lead ore, as against 32 with 6801 tons in 1878. There was thus a falling off last year of 1722 tons, or more than the reduction in the yield of Montgomeryshire. The principle falling off was in the Lisburne Mines of 913 tons, and in Goginan of 215 tons. Possibly, as I suggested in the case of the Van, this reduction in the quantity of ore sold may be due to trade reasons based on the low prices ruling. The most productive mines were Grogwinion with 1000 tons, and Lisburne with 948 tons, followed by East Darren, 540 tons; Cwmystwith, 487 tons; South Darren, 485 tons; and Frongoch with 370 tons, the other mines producing various lesser quantities down to West Cwmystwith with 5 tons. Among the mines that made a rapid stride was Mynydd Gorddu with an increase of 110 tons, or 180 tons in all. The quantity of silver contained in the lead ore raised last year was 42,770 ozs., or an average of nearly 8¼ oz. to the ton of ore. This is an increase of 1 oz. per ton over the average of 1878, and slightly higher than the average of 1877; the average yield of silver to the ton of ore is 8 ozs. Of course, some of the mines greatly exceed this average. South Darren and Court Grange, for example, with about 28 ozs. to the ton. As compared with Montgomeryshire the average production of silver in Cardiganshire is 1 oz. per ton higher. The yield of silver in Montgomeryshire last year was exceptionally low—only 8½ ozs. to the ton of ore.

The three mines selling copper ore last year were the Cambrian 300 tons, of the value of 1500*l.*, or 5*l.* per ton; Glog Fawr, 18 tons, value 37*l.* 10s.; and South Darren, 156 tons, value 624*l.* 16s. The production of copper in the county last year exceeded that of the year before by 168 tons. Of zinc nine mines produced between them, 825 tons 14 cwts, of the value of 2175*l.* Of this quantity Frongoch alone yielded 300 tons. It may be interesting to some if I conclude these particulars by saying that if we take the average yearly production of lead ore in Cardiganshire for the last 250 years at 5000 tons, we have a grand total of 1,250,000 tons; and if we distribute this over the mining area of Cardiganshire, which is about 20 miles from north to south, with an average width of 10 miles, or 200 square miles, we have 6250 tons per square mile of the ore as the amount hitherto extracted. In Flintshire and Denbighshire there is quite a revived interest in mining. At Caed-y-mor there is now a solid rib of ore, 7 in. thick, down the forebreast of the driving, and discoveries are reported from Rhosesmor and Pant-y-Mwyn. A new mine is being started to the north-east of Prince Patrick, and one on the Long Rake. In Denbighshire the ruinous aspect of the mines, which I described at the beginning of this year, is giving signs of renewed life.

With regard to the suggestion of "Viator," that I should recommend good slate quarries in North Wales. perhaps this is beyond the scope of these reports. It would, however, be easy to name quarries struggling with the exigencies of poverty which possess nearly, if not quite, as many of the elements of successful working on a large scale as the Penrhyn Dinorwic, or the larger quarries of the Festiniog group. If in any other way than naming them here I could promote their development I should be glad to do so. It may be taken as certain that great as is the magnitude of the slate and slab trade in North Wales, the ground worked is very little in comparison to that which awaits working, and the trade is as yet but in its infancy.

The railway workshop sheds built for the Potteries, Shrewsbury, and North Wales Railway, which are now used by the Midland Wagon Company at Shrewsbury, now present a busy scene. Between 400 and 500 men are employed there, and it is stated that 200 coaches are making for the London, Brighton and South Coast Railway.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Nov. 18.—This week certain of the manufacturing coalowners, encouraged by a little better demand from the mills and forges and furnaces, are demanding an advance of from 3d. to 6d. per ton. Where prompt supplies are needed they are getting the rise, but if it is a question of missing the contract if they stick to their demands, the old prices are accepted as the wiser alternative. The call for manufacturing fuel of any kind is not yet improved to the extent that owners can afford to let any orders slip by them that can be secured at anything like a reasonable figure. The domestic coalowners are generally successful in getting business at the full rise of from 1s. 6d. to 2s. per ton on the Cannock Chase deep qualities, announced by me a fortnight ago. Cokes and limestones are selling better, and vendors ask stiffer prices. Stocks at the blast-furnaces are decreasing, and this week reports are again abroad of the purposed re-lighting of furnaces in various parts of South Staffordshire that have been damped down and blown out. On 'Change yesterday and to-day pig-iron was rather firmer. Some native part-mine sorts realised a rise of from 1s. 3d. to 2s. 6d. per ton, and one brand of Lincolnshire all-mine iron was priced at 2s. 6d. in advance of the 50s. which was quoted for most Lincolnshire iron. Derbyshire and Northampton pigs were also stronger. Offers to buy Tredegar hematites at 3*l.* 7d. 6d. were promptly rejected, agents declaring that 3*l.* 10s. was the minimum. The firm market for hematites favourably influenced prices of Staffordshire all-mine pigs in producers' favour, and 3*l.* 5s. for hot-blast sorts was rather more generally adhered to than last week. In finished iron, sheets again manifested most activity. Merchants were trying to buy forward alike black and galvanised sheets, the latter sorts occasionally in heavy lots. Sellers, however, were shy. The quotations, too, varied with the state of their order books. Boiler-plates are slightly better at 8*l.* 7s. 6d. to 9*l.* Some unbranded bar makers were seeking to sell at a rise of 2s. 6d. Plenty of such bars were, however, still to be had at 6*l.* 10s. to 6*l.*

Mr. Brassey, M.P., the umpire to the Potteries Board of Arbitration sat at Hanley, on Tuesday, to hear the appeal of the men employed in all the branches of the potting trade for an increase of wages equal to 8½ per cent. Last Martinmas Lord Hatherton, the then umpire, reduced wages to the extent stated, and the men now say that the improvement in trade justifies a return to the scale paid before Lord Hatherton's award. Over 50,000 operatives are affected. The proceedings are expected to last four or five days.

TRADE OF THE TYNE AND WEAR.

Nov. 17.—There has been a large arrival of steamers and sailing vessels during the week, and the coal trade has been brisk in consequence. The steam coal trade has improved, and the shipments of gas and house coal continue active; the whole of the gas coal works are fully employed, and there is also a good demand for manufacturing coal. The coal and coke trades on the whole show a steady and increasing business with improving prices for most kinds. Coke is now being bought freely for next year. Contracts have been made for the first six months next year at about present prices. Ordinary furnace coke is 11s. 3d. to 12s. per ton delivered at Middlesborough.

Shot firing in coal mines has attracted much attention here of late, although so far as we are aware no serious explosion has occurred in the district from this practice, yet there is always a certain amount of risk in firing shots, in coal workings especially, and the object is to reduce the risk of explosion as far as possible. The practice of shot firing has been relinquished in many cases, but where the coal is strong and hard to work it is difficult to abolish shot firing without increasing the cost of hewing, and the price of coal at present will not admit of increasing the cost of working. In working stone it is absolutely necessary to fire shots, but as this has to be done in most cases in main roads and intake air courses the risk of an accident is not so great as in the coal workings unless it is found that an explosion can be caused by an accumulation of coal-dust in the roads.

As time progresses, and new coal fields are opened out in foreign countries, we may expect increased foreign competition; but, so far as price is concerned, England has, we believe, little to fear in the markets of the world, provided we had free trade and free admission into the ports of all countries, but this has not yet been conceded. In America our coal is excluded, or nearly so, by a hostile tariff. In Russia extensive coal fields have been discovered, and great exertions made of late to open out and develope them, and the Russian Government has very naturally fostered this industry. It is evident that they wish all the coal consumed in that great country and by the Navy shall be produced from their own mines, and that all foreign coal shall be excluded. Recently the Russian Admiralty issued an order prohibiting the use of Newcastle coal in the vessels of the Black Sea fleet, but it is not likely that this will be carried out even in the Black Sea, as Russian coal can only be got there at an increased cost as compared with English coal. In North Russia the recently discovered coal beds in the Olonetz province has failed to give satisfaction, and the Baltic fleet is, more or less, dependent upon England for its fuel. The Donetz is too far from Cronstadt for the supply of that district. The trade between those rivers and the Baltic and North Russia is very considerable, coal and iron being exported, and Russian produce, such as hemp, tallow, &c., largely imported. It is possible that the action of this arbitrary despotic Government may interfere with the trade seriously, and thus injure the people to a great extent in both countries. It is not matter for surprise that such an impolitic course should be pursued by the Russian Government where public opinion has so little influence, but it is surprising that free trade principles should make such slow progress in America, where there is a Republican Government and free institutions. Those principles, however, there is no doubt are making progress there, and they must ultimately prevail.

The iron trade has shown no great fluctuations in prices. There was a strong feeling during the greater part of the week, and there is a considerable amount of confidence in the future. No. 3 pig-iron is about 39s. 6d. per ton. Considerable sales forward have been made for January to March. Many buyers are from Scotland. Some iron has been sold at about 40s. 6d. for the first six months in 1881. There is still some enquiry for warrants. The stocks in Connall's stores still increase, being at present 113,253 tons. There is little change in the prices or demand for manufactured iron. Another plate mill has been started at Darlington. Steel is in good demand, and more steel rails have been shipped this week. The wages question in the plate and sheet mills, which has for some time agitated the trade, is likely to be settled very shortly, as Mr. David Dale has consented to arbitrate in the question. The foundries generally are still slack. There are also disputes in other branches of the iron trade. The blast furnacemen and the Cleveland iron miners contend that under the sliding scale their wages require readjustment. The questions in both these cases have been referred to arbitration. In the case of the furnacemen, Mr. Vincent Thompson, barrister, of Leeds, has been appointed umpire; and in the case of the miners, Mr. E. R. Turner, County Court Judge, has accepted the post. The official returns show that the exports of iron rails continue to fall off, but there is an increase in the exports of steel rails, which more than counterbalances the falling off in iron rails. Of iron rails 6705 tons were exported last month, and 40,444 tons of steel rails.

The success of the Thomas-Gilchrist method of making steel is now considered to be an assumed fact both in a commercial and mechanical sense. The elaborate address of Mr. Windsor Richards to the Cleveland engineers, and his emphatic assurance of this fact, may be taken as the official dating point of a new era for this district. The successive steps that have been taken from the use of the metal convertors at Middlesborough to those of the immense vessels at Eston are full of interest, and they may be summed up in the statement that the bar to the use of cheap ironstone in steel making is removed. The labours of Bell, Snelus, and others had demonstrated that the vitiating element in cheap ironstone could be expelled, but the late experiments show that it can be done by the Bessemer convertor, and that simply and cheaply. The inventions of Bessemer and Mushet enabled smelters to produce steel cheaply from iron ores rich and pure, but this ore is limited in area, and of course dear, but the immense tracts of cheap ore can now be utilised for the same purpose, and the basic method of producing steel may be said to enfranchise great districts of this and other countries, and it may now be expected that we shall see an early growth of the steel trade in Cleveland and the Durham seaboard. It may also be expected that steel will come largely into use instead of iron for shipbuilding and other purposes. At Middlesborough, on Tuesday last, there was a firm feeling, and some considerable sales were effected at slightly enhanced rates. The exports of pig-iron have been large, nearly 20,000 tons being sent from Middlesborough last week. The steel trade of the district is busy, and there have lately considerable shipments. A large amount of bridge building has been given out lately. The plate works are fully employed, and the bar trade is improving. There is a better demand for coal and coke. A strike of miners and others has been going on some time at the South Moor Colliery, belonging to Messrs. Hedley, 180 men having been out. The strike was caused by a dispute between the masters and mechanics, who refused to work at a reduction offered by the masters of 1s. per week, and the miners, with the sanction of their Union, also came out. Notice was given some time ago to the men to leave the houses belonging to the owners, and on Tuesday a number of them were evicted, and the process will be proceeded with until all are evicted.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Nov. 18.—The late heavy rains have in some few instances interfered with mining operations, but these have now been surmounted. It is said that the production of lead ore in Derbyshire during the present year will be less than it was in 1879, and this in all probability will result from a diminished output from the many small mines worked by miners having no capital, and having no machinery or modern appliances. At the few large concerns where the work is carried on in the best manner it is not likely that there will be any appreciable falling off in the production. A considerable quantity of barytes is made at several places, and for which there are markets, it being used instead of white lead by painters. The Iron Trade is still in a comparatively healthy state, and a heavy tonnage of ironstone is brought from Northamptonshire for several of the principal works, in some instances being mixed with some of the local stone. The output of the furnaces has been well kept up, and the local consumption as well as the sales has not led to any material increase in the stocks as a rule. Bars and merchant iron generally has been in fair request, but the mills have not been kept going to their full capacity. Some good orders are in hand for engines and machinery, and several of the foundries are doing a fair business in pipes and general work.

The house coal trade is now, perhaps, better than it has been during the previous part of the year, and a good business is now being done with the Metropolis, more especially from Clay Cross, Eckington, Blackwell, and Grassmoor. Prices have also advanced consequent on the increased demand, but not to anything like the extent that the London merchants have raised the prices to the consumers, which are from 2s. to 3s. per ton higher than they were in summer for inland coal, and 4s. as regards best Wallsends. Steam coal is not in such good request as it has been, the requiremefits of railway companies not being quite so heavy as in summer, but there has been no falling off in the consumption at the blast furnaces. Gas coal is being sent away in considerable quantities in the carrying out of contracts, and a good deal of coke is being made, the demand for which is of a steady character for iron smelting and other purposes.

In Sheffield trade generally is good, and in some branches there is more than ordinary activity. This is the case with skate makers, who, as a rule, last year sold off their stocks, and the run upon them just now is such as has scarcely ever been known previously. Some improvements have been made in them that will be appreciated by skaters. Plates, both heavy and light, the latter for shipbuilding and boiler making, have been rather extensively produced, and the mills engaged on hoops and telegraphic and ordinary wire have been running well. The Bessemer converters have been kept busily going, a large quantity being absorbed at the rail mills, as well as from some qualities of cutlery. The latter has been in rather better demand, so that the leading houses have as much as they can do. Russia and America having sent some considerable orders of late for various descriptions of hardware. Edge-tools are still in request, but file manufactures are not so busy as they have been, and some firms are returning to the lower wages scale that was in force a few months ago. There is a tolerably fair business being done in railway and other springs, whilst there is a good deal doing in tyres, axles, and general railway material. No improvement has taken place at the foundries, more particularly as regards stoves, grates, and builders' castings. The make of pig-iron has been kept up well in the district, whilst a good deal of hematite has been imported.

In South Yorkshire the business doing in coal is considerably better than it has been for a long time, so far as regards households, so that many collieries are now working full time, but this change has not brought with it the rise in price that might have been expected. Not so much, however, is being done with the Metropolis as could be desired, owing to the rate charged by the Great Northern being so much higher than in some other parts of the great Midland coalfield. Hard coal is not so much enquired for, and the exports have declined from the Humber ports, as the Baltic is closed by the ice. In other descriptions of coal there has been no change.

Messrs. Wheatman and Smith (Limited), Russell Works, Sheffield, having paid an interim dividend of 7½ per cent. in May last, the directors recommend a further dividend of 7½ per cent., making 15 per cent. for the year, and in addition a bonus of 2s. 6d. per share is to be paid.

IRON TRADE REPORT.

We addressed our last report to you in August, and as the result of the harvest here and on the Continent can now be more accurately gauged, we again give you our views on the position of the market. It may be taken for certain that there has been more than an average harvest over Europe, with the exception of Germany. This is a decided advantage over the last few years, and its good effects will soon become manifest. As regards our special branch of trade, the questions arise—will the benefit be in the same proportions as imports of food supplies decrease? Will the increased buying power of our own country compensate us for the decrease of purchases which foreigners, notably the United States, made in exchange for the large quantities of cereals and provisions we took from them? The United States representing the heaviest figure, we have to see whether they will come into the market again, as last year, for heavy supplies of iron, steel, and other materials. We think not, for the following reasons. They have large stocks of old materials, as the result of speculative shipments pressed forward during the inflated periods in the beginning of this year. Old rails and scrap now hardly fetch so much c.i.f. United States as they do on the spot in England and the Continent. Shipments, therefore, from this side have almost ceased, and whateever is going on may be taken as remainders of old contracts. As regards new materials, we see that any increased demand is almost immediately met by the enormous power of supply. Like the old war between guns and armour-plates, the position shifts from to-day, but is never left undecided for a long period, the supply promptly exceedingly any demand. In the Glasgow pig-iron market we find a larger stock in Connal's stores than there has been for years, and a comparatively heavy stock also in the han ls of makers of repute. We have to bear in mind that these have accumulated not-

withstanding the unprecedented export during the last twelve months to the United States. The only branch of the iron and steel trade which has been able to retain some part of the advance of the high price is the manufacture of steel rails and plates. On the other hand, we see iron rails and ordinary bars, hoops, and sheets going back. The fact is that enterprises on a grand scale, which were formerly liberally supported by English capitalists—say, railway projects abroad, gas and water works, &c.—do not now meet with such response from that quarter. The losses to capitalists by the many chimerical schemes put on the market have so thoroughly dishearened them that they do not care to discuss new projects, and prefer to keep their capital floating, leaving it to bankers to deal with it as best they can. We, therefore, think no decided improvement in our special trade will take place until capitalists and investors are tempted out of their seclusion by sound enterprises being put before them. which meet their approval and assistance. It is generally believed that with a brisk trade, as newspapers have told us, has been going on for a long time, money cannot long remain at 2½ per cent. or thereabouts, but should reach 4 or 5 per cent.; the phenomenon of a continued low rate of interest has, however, remained unaltered for months past; with steel rails at 10*l.* per ton, which are now 6*l.* per ton; with Scotch pigs at 70s., which are now 50s. Other industries have to some extent had similar ups and downs, but the money market has not undergone any change. Home railway companies have been buyers to a very large extent, and on most favourable terms where their financial position is undoubted. Many enquiries have been on the market for foreign railway companies, with terms of payment conditional on delivery at ports of disembarkation, and subject to guarantees for fulfilment of contracts, and, in some cases, with an additional guarantee of the rails. Such terms are not acceptable to the English maker, for when he was the only supplier of railway materials he was accustomed to get his own terms of payment, and he cannot easily make up his mind to meet the altered circumstances. Contracts are, therefore, often placed with Belgian and German makers, who, to some extent, are less chary of meeting the requirements of their customers. The thin end of the wedge is thus brought in against the English manufacturer, and makes his position daily more difficult, for after all it is the foreign and colonial demand he has principally to rely upon for keeping his works going. In consequence of the lessened demand, the exports to the United States have fallen off considerably during the last few months in almost every article they take from us. The Canadian, North of Europe, and Baltic ports will soon be closed to navigation, and buyers are, therefore, likely to purchase for some time to come at favourable prices. Our shipbuilding yards and engineering shops are well off for work, giving prospects of steady occupation for their men over the winter months.—BOLLING and LOWE: Laurence Pountney Hill, London, November.

PROVINCIAL STOCK AND SHARE MARKETS.

CORNISH MINE SHARE MARKET.—Messrs. ABBOTT and WICKETT, stock and share brokers, Redruth (Nov. 18), write:—The market has varied considerably during the past week, and for two or three days low prices were accepted, which quickly attracted the attention of investors, and a good business followed. The market closes at its best, and there are buyers of most shares at the annexed quotations:—Blue Hills, 3½ to 4; Carn Brea, 91 to 93; Cook's Kitchen, 10½ to 11; Dolcoath, 56 to 56½; East Pool, 35½ to 36; Mellanear, 5 to 5½; New Cook's Kitchen, 6¾ to 7; North Busy, 3¼ to 3⅜; Pedn-an-drea, 1¾ to 2; Pendarves United, 9 to 10; Santa Gertrude, 175 to 180; South Condurrow, 10¾ to 11¼; South Crofty, 11 to 11½; South Frances, 11 to 11½; Tincroft, 17 to 17½; West Basset, 15½ to 16; West Peevor, 17 to 17½; West Frances, 11 to 11½; West Tolgus, 47 to 50; West Seton, 17 to 19; Wheal Agar, 6 to 6¼; Wheal Basset, 5¼ to 5¾; Wheal Grenville, 10 to 10½; Wheal Kitty, 4¼ to 5; Wheal Peevor, 28 to 29; Wheal Prussia, 1½ to 1¾; Wheal Uny, 3¾ to 3¼.

— Mr. S. J. DAVEY, mine sharedealer, Redruth (Nov. 18), writes:—There has been a general improvement in our market since last week. The reduction in prices induced buyers to come forward; prices again advanced, and the market closes at its best to-day. Carn Brea shares have risen 4*l.*, Dolcoath 20s., East Pool £0s., Tincroft 20s., West Peevor 15s., and Wheal Uny 10s. The following are to-day's prices:—Blue Hills, 3¾ to 4; Carn Brea, 92 to 93; Cook's Kitchen, 10½ to 11; Dolcoath, 55½ to 56½; East Pool, 35½ to 36; Mellanear, 4¾ to 5¼; New Cook's Kitchen, 7 to 7¼; North Busy, 3½ to 3⅜; Pendarves United, 9 to 10; Penhalls, 1¾ to 2; Pedn-an-drea, 1⅝ to 1⅞; South Condurrow, 10¾ to 11¼; South Crofty, 10¾ to 11½; South Frances, 11 to 11½; Tincroft, 17½ to 18; West Basset, 15½ to 16; West Frances, 11 to 11½; West Kitty, 2¼ to 2⅜; West Peevor, 17 to 17½; West Poldice, 2¾ to 3¼; West Tolgus, 47½ to 50; West Seton, 17 to 19; Wheal Agar, 6 to 6½; Wheal Basset, 5½ to 6; Wheal Comford, 3½ to 4; Wheal Grenville, 10 to 10½; Wheal Jane, ⅝ to ⅞; Wheal Peevor, 28 to 29; Wheal Kitty, 4½ to 5; Wheal Sisters, 1¾ to 2; Wheal Uny, 3½ to 3¾.

— Mr. J. H. REYNOLDS, stock and share broker, Redruth (Nov. 18), writes:—Owing to the improvement in the tin market a good enquiry has set in to-day for all the leading shares at advanced prices, more particularly for Carn Brea, Dolcoath, East Pool, West Peevor, and Wheal Basset shares, which close at their best. The fortnightly settlement, which is a very heavy one, is being got through without any hitch. Subjoined are closing quotations:—Blue Hills, 3½ to 4; Carn Brea, 91 to 92; Cook's Kitchen, 10½ to 11; Dolcoath, 55¾ to 56¾; East Caradon, 1¾ to 2; East Pool, 35½ to 36; Gunnislake (Clitters), 3½ to 4; Herodsfoot, 1 to 1¼; Levant, 4 to 6; Marke Valley, 2 to 2¼; Mellanear, 5 to 5½; New Cook's Kitchen, 6½ to 7; North Busy, 3⅛ to 3⅜; North Herodsfoot, 10s. to 12s. 6d.; North Levant, 5 to 6; North Penstruthal, 1 to 1¼; Pedn-an-drea, 34s. to 36s.; Pendarves United, 9 to 10; Phœnix, 2¾ to 3⅛; Penhalls, 2 to 2¼; South Caradon, 60 to 65; South Condurrow, 10¾ to 11¼; South Crofty, 11 to 11¼; South Frances, 10¾ to 11¼; Tincroft, 17 to 17½; West Basset, 15 to 15½; West Chiverton, ¾ to 1; West Frances, 11 to 11½; West Kitty, 2¼ to 2½; West Peevor, 17 to 17½; West Poldice, 2¾ to 3; West Seton, 17 to 19; West Tolgus, 47½ to 50; Wheal Agar, 6 to 6¼; Wheal Basset, 5½ to 6; Wheal Crebor, 4½ to 4¾; Wheal Comford, 3¾ to 3¾; Wheal Grenville, 10 to 10¾; Wheal Jane, 12s. 6d. to 15s.; Wheal Kitty, 4½ to 5; Wheal Peevor, 28 to 28½; Wheal Prussia, 1½ to 1¾; Wheal Uny, 3⅜ to 3⅝.

— Mr. JOHN CARTER, mine sharedealer, Camborne (Nov. 18), writes:—The Cornish mine share market shows a steady improvement in prices compared with last weeks. East Pool shares recovered to 35½, buyers, and Dolcoath to 56. Carn Brea shares have advanced to 92 and West Peevor to 17½. North Busy shares slightly weaker. There is no change in the tin standards. Closing prices annexed:—Blue Hills, 3¾ to 4; Carn Brea, 92 to 93; Cook's Kitchen, 10¾ to 10¾; Dolcoath, 55¾ to 56½; East Caradon, 1¾ to 2; East Pool, 35½ to 36; Mellanear, 5 to 5¼; New Cook's Kitchen, 7 to 7½; North Busy, 3⅛ to 3¼; Pendarves United, 8½ to 9½; Penhalls, 1¾ to 2; Pedn an-drea, 1¾ to 1⅞; South Caradon, 60 to 65; South Condurrow, 11 to 11¼; South Crofty, 10½ to 11⅛; South Frances, 11 to 11½; Tincroft, 17¾ to 17¾; West Basset, 15½ to 16; West Frances, 11 to 11½; West Peevor, 17 to 17½; West Poldice, 2¾ to 3; West Tolgus, 48 to 50; West Seton, 17 to 18; Wheal Agar, 6¼ to 6½; Wheal Basset, 5¾ to 5½; Wheal Grenville, 10 to 10¾; Wheal Jane, 12s. 6d. to 15s.; Wheal Peevor, 28 to 29; Wheal Kitty, 4¾ to 5; Wheal Prussia, 1⅜ to 1½; Wheal Uny, 3⅜ to 3⅝.

— Mr. M. W. BAWDEN, Liskeard (Nov. 18), writes:—The mining market keeps firm, with a steady demand for most shares at an advance, prices closing strong at the settlement, the quotations being—Bedford United, ⅞ to 1; Carn Brea, 89 to 90; Gunnislake (Clitters), 3¾ to 4; Cook's Kitchen, 11 to 11½; Dolcoath, 55½ to 56; Devon Consols, 13 to 13½; Devon United, 1½ to 1¾; East Caradon, 1¼ to 1⅜; East Crebor, ⅞ to 1; East Pool, 35 to 35½; Gawton United, 1 to 1¼; Glasgow Caradon, 1½ to 1¾; Herodsfoot, 1 to 1½; Hingston Down, 1¼ to 1½; Marke Valley, 1⅞ to 2; Mount Carbis, 2¼ to 3; New West Caradon, ⅞ to 1; North Herodsfoot, ½ to ⅝; Old Gunnislake, ⅜ to ½; Phœnix United, 3¼ to 3¼; Prince of Wales, ¾ to ⅞; South Caradon, 60 to 62½; South Crebor, 1 to 1⅛; South Crofty, 11 to 11½; South Devon United, 1½ to 1¾; South Frances, 11 to 11½; Tincroft, 17¼ to 18; West Basset, 15½ to 16; West Caradon, 2 to 2⅛; West Crebor, ⅜ to ½; West Frances, 11 to 11½; West Mary Ann, 1 to 1⅛; West Phœnix, 2 to 2⅛; West Tolgus, 50 to 51; Wheal Agar, 6½ to 6¾; Wheal Crebor, 4¼ to 4½; Wheal Fortesue, 1¾ to 2; Wheal Hony and Trelawny, 2¼ to 2½; Wheal Jane, ¾ to ⅞; Wheal Peevor, 28½ to 29; Wheal Owles, 7½ to 8; Wheal Uny, 3¾ to 4.

MANCHESTER.—Messrs. JOSEPH R. and W. P. BAINES, sharebrokers, Queen's Chambers, Market-street (Nov. 11), write:—With the exception of rails, in which several fluctuations have taken place, the markets generally have been far from active, resulting in business of meagre extent. Taking prices all round, however, they compare somewhat favourably with those quoting a week ago, and where severe changes are recorded, which is not in many instances, they are the results of individual influences rather than to any general tendency. The fact that Consols have again reached par shows a large amount of confidence in the future of political affairs, but it also proves that a large amount of money is still withheld from individual undertakings, and until this is more distributed trade generally cannot participate to the fullest extent in the benefit which it was reasonable to expect would accrue from the good harvest and its consequent saving to the country. This, however, is only a question of time, we think, and when the capital which is at present invested at very low interest and undoubted security is ventured into commercial channels, a spring in trade all round will doubtless ensue.

COAL, IRON, &C., AND MINING.—During the first three days of the week this market was an almost entirely neglected one; since then some little stir is noticeable, and some variations have been marked. Only a straggling business has been done, however, but prices obtained latterly are fully up to rates realised about last week at this time, so that in transactions there is very little change to report. A number of changes, however, are to be noted in cases where business has not resulted, and in number the balance is very slight between advances and declines, neither side preponderating sufficiently to give a very distinct tone to the market. The following are higher:—Sheepbridge Coal and Iron, 3; Tredegar, A, 1; Cammells, ¼; Telegraph Construction and Maintenance, ⅜; and Earle's Shipbuilding, Ebbws, Brown's, G. Laxey's, and Patent Nut and Bolt, ¼ each. Lower:—Nant-y-Glo and Blaina, 1; Palmer's Shipbuilding, B, 1; Park Gate Iron, ½; and Bolckow's fully paid, Chatterley Iron, Pelsall Coal, &c., and United States Rolling Stock, ¼ each.

COTTON SPINNING AND MANUFACTURING.—The state of the yarn trade continuing unsatisfactory (although on Tuesday last a slightly better feeling was said in some quarters to be noticeable) causes this market to be flat in sympathy; but whilst buyers are not disposed to spring to sellers' figures, very little disposition is shown by holders to accept reductions, and consequently there is very little actual business passing, and the state of the market may be described as inactive, but prices fairly steady.——TELEGRAPHS, with the exception of Western Brazilian, which have to-day marked a sharp rise, have not been much dealt in during the week. The movements in Anglos are irregular, but Western and Brazilian, compared with last week's figures, show a rise of 15/16. CANALS without movement. CORPORATION STOCK unaltered in price, the only transaction being an odd lot of Manchester Consolidated at 103½. Miscellaneous show very few transactions, and prices remain without change, with the exception of a rise of ¼ in Manchester Carriage and Trams.

BANKS have been dealt in very sparingly at prices very little altered from a week since. The variations though few are mostly for the better, the only instance of decline being a very trifling one—½ in Liverpool Commercial, whilst National Provincial ordinary and new are both ½, Manchester and Liverpool District ¼, Manchester and Salford ½, and Consolidated 1/8 higher.

INSURANCE have apparently attracted very little attention, for not only is the business reported of very small amount, but the changes of quotation are mainly unworthy of special remark, with the exception of an advance of ½ in Liverpool, London, and Globe. Thames and Mersey Marine and British and Foreign Marine have each seceded ½, but they quote high figures still. Commercial Union have marked a little advance during the week, but to-day's quotations in them do not show any stir.

RAILWAYS.—The quotations of the past week have been very irregular. Brighton, A, as of late, show various movements, having once been quoted 149½, and down again to 147½, the traffic this week rather disappointing the "Bull" party. North British has also shown itself very changeable, and falling away to 89¾; their returns of Wednesday tending to this drop. All have more or less been subject to depreciations, with now and again a stronger tone prevailing, North-Eastern and Sheffield, A, coming especially into request to-day, as also other speculative descriptions on Consols again touching par. In Canadians the account proved only a small "Bull" account, and prices improved for all issues, weakening yesterday, but recovering afterwards, and to-day's Trunk traffic 2070 increase again brought in sellers, and their issues fell away, closing flat. The American market only has shown great activity in Philadelphia and Reading ordinary, these falling 85 on the opposition to their deferred stock scheme; to-day, however, a better view is taken, and the price is somewhat stronger. Erics also firmer, and Pennsylvanias have recovered their dividend.

HULL.—Mr. W. FOWLER SUTTON, stock and share broker, St. Mary's Chambers (Nov. 18), writes:—The stock markets as regards rails duriug the past week have been, on the whole, inclining to weakness, and Berwicks, Sheffields, Londons, and Midlands alone show an improvement, and these to only a trifling extent—in fact, little more than would pay the contango last Monday. On the other hand, British heads the list with a fall of about 4 per cent., and the remainder follow with reduced quotations ranging from ¼ to 1 per cent. The usual rumours were in vogue prior to and during the settlement about dearer money, but it can hardly be said that they were realised—in fact, as contangoes were not sensibly heavier. Neither can the traffics be taken as unfavourably by impartial judges, though they were apparently disappointing to speculators with two or three exceptions, notably the North-Eastern. Quiet markets may be expected for the next month or so, and then prices will begin to be trimmed in accord with probable dividends. At one time Trunks and Canadas were in strong demand, but the former company's traffic, which was announced this afternoon being only 2080*l.* increase, has occasioned a small relapse, which, however, will probably be sharply recovered from when speculators and others consult their traffic books, and see that the coming traffics have to compare against very much decreased takes, which, although peculiar to the company from natural causes, will still give it its improving position a better chance of making favourable comparisons. American stocks good, especially Atlantics, which have risen ¾ on the week, and will, it is expected, see still higher prices. Local stocks firm, with an improving tendency. Hull Banks, Hull Docks, and Earle's Shipbuilding are enquired for, but sellers scarce at present prices—11*l.* 17s. 6d., 87½, and 18½ respectively. Hull Trams, 9½; Sutton Gas, 13; London and Yorkshire Bank, 30s.; Yorkshire Bank, 23.

NEWCASTLE-ON-TYNE STOCK EXCHANGE.—Messrs. SPENCE and IRWIN, stock and share brokers, Grey-street (Nov. 18), write:—Our market has been quiet but steady. Bede Metal and Chemical Company's shares have improved to 1 dis., at which they are now offered. Bolckow, Vaughan, and Company's shares are firm at 4½ prem. for 12*l.* paid, 29 for 20*l.* paid, and 20⅜ for 5 per cent. preference. Consett Iron Company; notwithstanding excellent reports from the works these shares do not improve in value; this we believe is owing to there being a great many holders disposed to realise at (to them) the present high price. Buyers to-day at 14¼ prem., sellers at 14⅞. Consett Spanish Ore shares remain firm at 29s. 6d. Darlington Iron Company; the call of 2*l.* per share sent these shares down to 15½ dis., from which they have slightly recovered, 14½ dis. being bid, whilst they are not offered under 14 dis. John Abbot and Company's shares are in fair demand at 30 dis. Palmer's Shipbuilding and Iron Company's A shares have improved to 25; the B shares, after touching 6 dis., have receded to 7½ dis. Crook Burn Mining Company's shares are freely offered without tempting sellers. The quoted price par is purely nominal. Dubby Syke Mine, after being offered uselessly for some weeks, a buyer has been found at 7s. 6d. per share for 20s. paid shares, at which price they are still offered. Teesdale Mine, both ordinary and preference shares are offered at 8s. each, whilst 6s. 6d. is best bid.

SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—Mr. J. GRANT MACLEAN, sharebroker and ironbroker (Nov. 18), writes:—During the past week the markets have been quieter, owing to the fortnightly settlement intervening, and the new account for Dec. 2 is as yet no brisker. The reports of trade generally throughout the country continue promising, no doubt owing to the favourable harvest; and although money is getting dearer, that is by no means a bad sign, as it has been too cheap for some time past to indicate much confidence. The improvement in the price of securities is very gradual at present, and affords little scope for speculators, although satisfactory enough to investors.

In shares of coal, iron, and steel companies the movements for the week comprise advances of 11s. per share on Clyde Coal, 2s. 6d. each on Benhar and Ebbw Vale, 1s. 6d. on Marbella, also 6d. on Omoa and Cleland; on the other hand, Nant-y-Glo and Blaina (preference) are reduced 1*l.* per share, Monkland (preference) 1s. 3d., also Glasgow Port Washington and Monkland 1s. In the Scotch pig iron market warrants have steadily improved to 53s. 2d. this week, owing to an expected demand on American account, as well as a generally improving condition of the home trade, which is ascribed to the satisfactory harvest this year. The Monkland Iron and Coal Company, also the Rhymney Company, are both offering debentures at 7 per cent. interest, which should be safe investment. Benhar Coal shares have improved from 19s. 9d. to 25s. 6d., but are now about 23s. Arniston Coal and Steel Company of Scotland now dealt in ex div.; Ashton Vale are at 5; Antrim Iron Ore, A, 45s.; Andrew Knowles and Son, 11¼ dis.; Bagworth Colliery, 67s. 6d.; Bilbao Iron, 27¾; Bilson and Crump Meadow, 62s. 6d.; Bolckow, Vaughan, 29½; ditto (12*l.* paid), 5 prem.; ditto (pref.), 20½; Bowesfield, par; Cardiff and Swansea, 40s., Charles Cammell and Company, 8 dis.; Chillington Iron, 82s. 6d.; Clyde Coal, 74s. to 75s. 6d.; Darlington Iron, 14¼ dis.; Ebbw Vale, 10 dis.; Great Western Colliery, 57s. 6d.; Hampstead Colliery, 8 dis: Henry Briggs, A, 10; H. Henry, par; John Bagnall and Sons, 25s. to 30s.; John Brown and Co., 10½ dis.; Llynvi and Tondu, 6¼; Lofthouse, 75s.; Lowestoft Colliery, par; Marbella, 75s. to 80s.; Monklands, 55s. to 57s. 6d.; ditto, preference, 6 to 6¼; Muntz's Metal, 50s. prem.; Mwyndy, 45s.; Nant-y-Glo (ordinary), 30s. to 50s.; ditto, preference, 35½ to 36½; Newmarket Colliery, 5; New Sharlston (preference), 70s. to 90s.; Newport Abercarn, 7; Oakham Colliery (preference), 5s.; Omoa, 26s. 6d.; Onllyn and Dulais, 5; Parkgate Iron, 39s. prem; Pelsall, 95s. dis.; Silkstone and Dodworth, 40s. to 80s.; Shotts Iron, 75 to 80; Sandwell Colliery, 16½; Steel Company of Scotland, 11½ to 11¾; Staveley, C, 79; South Wales, 30s.; Sheepridge, 16½ dis.; Skerne Iron, 4 to 5; Steel Company of Canada, 4¼ to 5½; Tredegar, A, 22; Teeside, 43s. 9d.; Teesbridge, par; and Wigan and Whiston, 65s.

In shares of foreign copper and lead companies, Panulcillos have advanced 8s. 9d. per share; Rio Tinto, 5s.; Huntington, 4s.; but Yorke Peninsula (pref.) are reduced 2s. 6d. and Canadian, 6d. At the meeting of the Panulcillo Company, on Nov. 30, a dividend of 2s. 6d. will be announced; the net profits were 27,212*l.* but a debit balance of 19,309*l.* from previous year has to be met. The late sales of the Cape Company have been realising 12s. 1½d. to 12s. 3d. per unit. Tharsis are steady at 33½ to 33¾. Alamillos are at 22s. d6.; Coplapo, 11⅝; Canadian, 33s. to 34s.; English-Australian, 32s. 6d.; Hultafall, 40s.; Huntington, 63s. 6d. to 64s. 6d.; New Quebrada, 5¾; Rio Tinto (5 per cent.), 96½; Virneberg, 30s. to 40s.; and Yorke Peninsula, 5s. to 7s. 6d.

In shares of home mines business continues very dull. Glasgow Caradons are firmer at 24s., but the new shares are 1s. 6d. lower, at 15s. to 17s. The half-year's accounts of the Devon Consols include seven months' expenditure, and only six months' receipts, besides providing for exceptional expenditure, and there is a credit balance of 7014*l.*, as against 2880*l.* at the corresponding time last year. They have already paid three quarterly dividends, and another one will be declared at the meeting next Wednesday. Wheal Crebor has declared a dividend of 1s. 6d. per share, payable on Nov. 25, and they calculate their ore reserves at 20,000*l.* Business in tin mines has been quieter. The North Busy meeting is to be on Nov. 24; the lode in the 10 end east is improved to about 60*l.* per fathom for tin, although the full width is not seen yet. The meeting of West Kitty is to be on Nov. 25; the mine is reported to be looking better, and the returns accordingly increasing. Blue Hills are 7½s.; Berchaven, 3s. 9d.; Bettws-y-Coed, 15s. 6d.; Bwlch United, 50s.; Carn Brea, 83; Carnarvon, 16s. 3d.; Cook's Kitchen, 11¼; D'Eresby Mountain, 45; Devon United, 42s. 6d.; Drakewalls, 37s. 6d.; East Buller, 20s.; East Pool, 35½; East Crebor, 12s. 6d. to 17s. 6d.; East Van, 40s.; East Chiverton, 25s.; East Caradon, 37s. 6d.; Fortescue, 20s. to 30s.; Grogwinion, 65s. Great Laxey, 18¾ to 19¼; Herodsfoot, 20s.; Killifreth, 6s. 3d.; Killaloe Slate, 9s. 9d.; Lady Bertha, 17s. 6d.; Llanrwst, 2s. 6d.; Marke Valley, 40s.; Mining of Ireland, 62s.; Mid-Devon, 5s. 6d.; Mount Carbis, 57s. 6d.; North D'Eresby, 20s. to 25s.; New Caradon, 12s. 6d.; New Kitty, 22s. 6d. to 27s. 6d.; Pandora, 15s. to 17s. 6d.; Pant-y-Mwyn, 20s. to 30s.; South D'Eresby, 17s. 6d. to 18s. 9d.; South Crebor, 20s. to 30s.; South Devon, 45s.; South Frances, 11½; South Condurrow, 11; South Penstruthal, 12s. 6d.; Tamar, 25s.; Tretoil, 20s.; West Caradon, 31s.; West Chiverton, 20s. to 30s.; West Poldice, 50s. to 70s.; West Frances, 12; West Basset, 16½; West Pateley, 20s. to 30s.; Wicklow Copper, 9s.; Wheal Coates, 35s.; Wheal Hony, 50s.; Wheal Kitty, 90s. to 100s.; Wheal Peevor, 29s.; Wheal Jewel, 16s. 3d.; Wheal Comford, 65s.; Wheal Jane, 12s. 6d. to 17s. 6d.; and Wheal Owles, 7½ to 8.

In shares of gold and silver mines, there has been less business doing. Richmonds are now dealt in ex. div., and lower. This week's run is 840,000. The interim dividend of the St. John del Rey is expected to be 10 per cent., but they will likely pay more next year. The clean-up at Blue Tent is 24,000. Almadas are at 8s. 9d. to 11s. 3d.; Cedar Creek, 2s.; Chontales, 4s. to 6s.; Colorado, 52s. 6d.; Devala-Moyar, 55s.; Devala Provident, par; Don Pedro, 15s.; English Australian, 17s. 6d.; Emma, 71s. 3d.; Eberhardt, 52s. 6d.; Flagstaff, 30s.; Frontino, 82s. 6d.; Gold Coast, 7s. 6d. to 8s. 9d.; Indian Phœnix, 25s.; Indian Glenrock, 32s. 6d.; Kapanga, 12s. 6d.; Nouveau Monde, 21s. 3d.; Pestarena United, 6s. to 8s.; Port Phillip, 9s. to 11s.; Rio Grande, 50s.; Rossa Grande, 3s. to 5s.; Ruby, 6¼; South Indian, 40s.; South-East Wynaad, 35s.; Tecoma, 5s. to 10s.; Tolima, A, 60s.; and Victoria (London), 7s. 6d. to 12s.

In shares of oil companies, Oakbanks are 6d. higher, but Young's Paraffin have fallen 10s. per share, Uphalls 5s., and Broxburn 2s. 6d. Young's Paraffin have declined from 13*l.* 8s. 9d. to 13*l.* Flintshire Oil are at 43. Runcorn Soap and Alkali, 30s. dis.

In shares of miscellaneous companies, business continues quiet. Avonside Engine are at 42s. 6d. dis.; Cheshire Salt, 8; Droitwich Salt 15s.; ditto, pref., 60s.; Earle's Shipbuilding, 16 dis.; India Rubber, 17¼; Native Guano, 5; Nobel's Explosives, 10 to 11; Palmer's Shipbuilding, A, 25; United Limner, 40s.; Val de Travers Paving, 6; and Zoedone, 25s. Prices of wagon companies' shares are:—Birmingham, 13; Bristol, 65 dis.; Bristol and South Wales, 6½; Gloucester, 8¾; Metropolitan, 60s. prem.; Midland, 10; Railway Carriage 80s.; Swansea, 45s.; Scottish Wagon, new, 63s.; Western, 55s.; and United States Rolling Stock, 18 to 19. In chemical companies' shares prices are: Goux, 21s. Langdale's 60s.; Lawes', 5¼; and Newcastle, 80s.

CLYDE COAL COMPANY (Limited).—The operations going on for a considerable time for proving the splint seam in this company's Spittal Hill field have at length been successful. The coal has been found at a depth of 220 fms. from the surface, or 16 fms. below the main seam, which is at present being wrought. The coal is of a very good quality, and, as an indication of being a clean field, is giving off large quantities of gas. As the company possesses an extensive area near the works of the Steel Company of Scotland, and within seven miles of Glasgow, there is good reason to expect large dividends.

On contango day the following were the rates of continuation current:—Contangos: 2d., 3d. on Canadian Copper; 1d, on Clyde Coal; 2d. on Caradon; 1¼d. on Caradon, new; 4d. on Glasgow Port Washington; 4d. on Huntington; 1½d. on Kapanga; 5d., 6d., 7d. on Marbella; 3d., 4d. on Monkland Iron; 6d. on Pref.; 2d. on Omoa; 6d. on Panulcillo; 4d. on Parys Copper; 3d. on Rio Tinto; 7d. on South Indian; 7½d. on Steel Company; 9d. on New; 1s., 1s. 3d. on Tharsis; 5d. on West Caradon; 7d. on West Kitty; 10d. on Wheal Crebor; 1s. on Broxburn; 6d., even on Uphal; 6d. on Young's Paraffin.—Backwardations: ¾d., 1d., 2d., 1½d. on Benhar Coal; 6d. on Uphall Oil; 6d., even on Young's Paraffin. On comparing the making-up prices fixed to-day for the undermentioned shares with those current at last settlement for the same shares, the variations thus shown to have taken place during the account are as follows:—Tharsis (new) have declined 17s. 6d. per share; Rio Tinto, 15s.; Tharsis, 15s.; India Rubber, 12s. 6d.; Broxburn, 5s.; Benhar, 4s.; Richmond, 3s. 9d.; Glasgow Port Washington, 3s. 6d.; Steel Company (new), 2s. 6d.; Glasgow Caradon (new), 1s. 6d.; Huntington, 1s. 6d.; and Marbella, 1s. On the other hand, Uphall have improved 12s. 6d. per share. Clyde Coal, 12s.; Young's Paraffin, 5s.; Monkland also; Omoa and Cleland, each 1s. 6d.; Monkland (pref.), 1s. 3d.; Canada Copper, 1s.; and Glasgow Caradon, 6d. The remainder are unaltered—Oakbank Oil, Panulcillo, and Steel Company of Scotland.

EAST LONG RAKE.—This mine is situate about midway between Principal Patrick and North Hendre Mines, and is a little to the west of the old celebrated Pant-y-Go Mines. It has seven known lodes traversing the sett, two north and south, and five east and west. Most, if not all, of these are known to be productive, and have been proved so either in adjoining properties or by shafts working in this property. One of these north and south lodes, worked on in the Wagstaff Mine, is producing good ore there, and are returning from 15 to 20 tons of lead per month (the mine is in local hands). In this property the same lode has been worked on to a depth of 40 fms., and produced good ore. The lode, or a shallow on it, carries off all the water, and consequently no pumping engine is required. An east lode and west lode—the Pwll Gwyn Llisen lode—being worked on in the mine adjoining of that name at a distance of 20 fms. from our boundary, and produces 4 tons of lead per fathom. The mine is only worked by a few hands, and is selling 10 to 12 tons of lead per month. Another east and west lode—the East Long Rake lode—has produced large quantities of lead at various depths down to the 50 fm. level, where it has been opened on for 15 fms., through a good body of lead the whole distance, with lead standing to the roof, sole, and end. There is also another east and west lode—the Gin lode—which is well known as a very productive one. This has not been seen in the property below the 20 fm. level, but a cross-cut from the shaft at the 50 fm. level is within a few fathoms of it, and when cut there will be a large quantity of ground then laid open, which can be taken away at a very cheap rate, and, the lead holds down, as there can be no doubt of its doing, at a splendid profit. The mine is in a most favourable position for working at the present time. The shaft has been sunk 60 fms., but no drivages made below the 50, and at the very little has been done, so the stoping ground will be laid open on the various lodes with very little delay. Then the cross-cut driven towards the Gin lode will save the company a lot of dead work, and be of great benefit to it. The shaft has been just re-timbered throughout and placed in first class order, and will be will be commenced in the course of a few days in the lodes. Capt. H. B. Vercoe has undertaken the superintendence of the mine, and he is confident of being able shortly to put 20 tons of lead per month in the market, and as the lodes are opened to increase it to 50 tons per month. Returns can be made almost immediately. The chances are that it will in a very short time be making regular returns, and will soon be in the Dividend List. The capital is 20,000*l.*, in shares of 1*l.* each, fully paid up, which are not offered under par, having all been privately subscribed.

EDINBURGH.—Messrs. THOMAS MILLER and SONS, stock and share brokers, Princes-street (Nov. 18) write:—The tendency of the railway market has latterly been to lower prices. North British stock has been specially heavy, and the last traffic return has helped the price down. The fall during the week on that stock has been from 93¼ to 89¾. Caledonian receded, but has nearly recovered the fall, and now stands at 114¾. Glasgow and South-Western has declined from 114½ to 114. Great Northern of Scotland from 70¼ to 69¼. English railways also have declined. Preference and debenture stocks have maintained their prices, and in some cases are higher. Bank stocks have come into demand, and prices have improved. Bank of Scotland has risen from 285 to 287. British Linen from 265 to 270. Commercial from 234 to 235. National from 263 to 265. Royal from 206 to 208. Union from 210 to 214. Clydesdale from 209 to 209½. Insurance shares have been good, and in several cases are higher. The shares of several mining companies have risen appreciably. Clyde Coal have advanced from 67s. to 75s., Benhar from 20s. 6d. to 22s. 6d., Huntington Copper from 61s. to 64s., Marbella Iron from 77s. 6d. to 79s. 6d., and Omoa from 26s. to 27s. In oil shares Broxburn have receded from 21¼ to 21½, and Young's Paraffin, from 13⅞ to 13 3/16.

IRISH MINING AND MISCELLANEOUS COMPANIES' SHARE MARKET.

DUBLIN, Nov. 18.—There has been a fair amount of business done in mine shares throughout the week, but in many instances sellers have had to accept somewhat lower prices. Mining Company of Ireland have realised 3*l.* 1s. 3d. yesterday, but I believe to-day 1-16th higher could be obtained. The general market is very quiet, but everyone is hoping for greater activity in the immediate future.

CORK.—Messrs. J. H. CARROLL and SONS, stock and share dealers, South Mall (Nov. 17), write:—There was no special feature in markets the past week. Railways are dull; Great Southerns, 115½ to 115½; Midlands, 88 to 88½; Bandons, 96½; and Passages, 10 to 10½. National Banks firm, at 66 to 66½; Provincials, at 61⅞; and Munsters remain 6⅞ to 7. Cork Steam Packets firm, at 13⅝. Lyon shares 5⅛ to 5¼, and Dalys 3½. Gas shares remain 7½, and Brewery sellers at 4½. Harbour Boards Debentures 102½, and Goulding shares, 9½ to 9⅝.

JORDAN'S PATENT PULVERISING MACHINE.

The object the inventors had in view when designing and working out this patent was to produce a machine capable of reducing all kinds of material from the hardest, such as emery, minerals, cement, to the softest, such as cereals, artificial manures, &c., to any degree of fineness without the use of sieves, by impact or percussion only and not by grinding or friction action, and this by the most simple combination of solid working parts. The following explanation will, we think, demonstrate the principle and manner in which this has been effected:—

Two circular dished castings, each having a long bearing projecting from the centre, are bolted together by their flanges, and form the crushing chamber which has an inlet opening on the top, and two outlet openings, one on each side. The two bearings carry short wrought-iron spindles, which meet each end in the centre of the crushing chamber. On the inner end of each spindle is keyed a set of four arms, the diameter of the chamber, the surfaces of the one set of arms being so angled at 45° with the horizontal centre line that they are parallel to and face those of the other set.

These arms pass in opposite directions close to each other, and to the sides of the chamber, and their backs are so formed as to create a blowing or fan action in the chamber, drawing air through openings in the sides and near the centre of the chamber. On the outer end of the spindles are keyed pulleys for driving by belts, the spindles and their arms and pulleys being quite free and independent of each other to turn in reverse direction. One of the said spindles has a worm engaging a wheel, and working the vertical shaft; this again drives at a given speed the automatic feeder.

By means of driving belts on the pulleys the spindles and their arms are revolved in reverse directions at any suitable speed for the material to be crushed. The material falling into the chamber from the automatic feeder is struck by one of the arms (owing to the angle of its face) into the path of those revolving in the reverse direction, and is by them, for the same reason, immediately returned; thus it is with great force struck to and fro from arm to arm until fine as required. There is, therefore, no grinding action, the crushing being done entirely by percussion or impact, but without centrifugal force. This is the whole process of crushing.

The fineness of the material leaving the machine is regulated by the current of air, which immediately takes away all particles light enough for its force to suspend; and the force of this current can be adjusted to the greatest nicety by simply closing or opening the apertures in the casing for this purpose. The current in the machine is sufficient to carry the crushed material up 10 or 20 ft. pipes to another chamber, the height of which column of pipes also regulates the size of the particles delivered, different sizes being delivered at various levels if required.

It will be seen, therefore, that an even product of any fineness may be reduced from any class of material, providing it be moderately dry, centrifugal action of the particles crushed being entirely obviated. Nothing can possibly have the crushing chamber until reduced to the fineness required—that is, sufficiently light to be suspended and delivered by the regulated current passing through the crushing chamber, thus avoiding the use of sieves entirely. The arms alone do the work of reduction, and are composed of massive castings to resist the wear and tear; the casing and bearings are in no way affected by the material, proof of which is that after six months' working of a No. 2 machine, the cut of the turning tool on the inside and periphery of the chamber can be distinctly traced.

This machine has now been at work for some months on quartz, cement, paint material, dyes, cereals, &c., all of which substances it is reducing to impalbable powder; and we are informed that the Messrs. Jordan and Son, of 52, Gracechurch-street and Bermondsey

have a machine constantly in action, and are prepared to crush samples of any kind for intending purchasers.

Meetings of Public Companies.

NORTH PENSTRUTHAL MINING COMPANY.

A four-monthly meeting of adventurers was held at the offices of the company, Draper's Gardens, on Wednesday,

Mr. JAMES PETRIE in the chair.

Mr. EDWARD ASHMEAD (the secretary) read the notice calling the meeting. The following report was read from Capt. Davey:—

Nov. 13.—Highburrow Shaft: Since your last general meeting this shaft has been sunk 14 fms. 3 ft., and is now 3 fms. below the 103 fm. level, where the lode is 4 ft. wide, of a very promising appearance, and producing good stones of tin. The lode in the 180 fm. level, driving east of shaft, is 2½ ft. wide, and worth for tin 6*l.* per fathom; this is driven east of shaft 15 fms. 3 ft. through paying ground. The 103 fm. is driven west of shaft 8 fms. 5 ft.; the lode in this end is disordered by a cross-branch, but judging from the outflow of water from the level is driven west of shaft 29 fms., where we recently met with a patch of elvan, which moved the lode a little to the north, in which direction we are now driving. We have driven a cross-cut north of Highburrow lode at the 58 fm. level 23 fms. 4 ft. 9 in., where we have intersected a lode of great promise, being 1½ ft. wide, composed of quartz, peach, mundic, and occasional rich stones of grey copper ore, on which we opened about 4 fms., 3 fms. east and 1 fm. west. The 46 fm. level is driven east of shaft 43 fms., lode 1½ ft. wide, and worth for tin 6*l.* per fathom. The 46 fm. level cross-cut is driven south of the Highburrow lode 61 fms.; the ground at present is a grey elvan, very compact; probably this underlies the lode, which from surface measurement is within 3 or 4 fms.; this end is driven by boring machinery, which answers the purpose well.—Ward's Lode: The rise in the back of the 10 fm. level is up 6 fms., lode producing saving work for the stamps; we hope to communicate this point with the adit level in the course of another month, when stoping ground will be made available. Since the formation of the present company we have purchased a 20 in. whim engine, with boiler and air compressor, built engine-house, loadings for both the engine and air compressor, and erected the same with the necessary appliances, reservoir, pipes, &c., to the 46 and 58 fm. levels, for working boring machinery, put in new skiproad from the surface to the 103 fm. level, with shaft tackle, &c., which are answering admirably, and tramroad from Highburrow shaft to end of 46 cross-cut, which is 139 fms.; also erected office, carpenter's shop, smiths' shop, store room, and yard. We have explored by sinking shaft, winzes, driving levels, and putting up rises 151 fms. 9 in. By way of conclusion, we would remark that our prospects in the bottom of the mine are encouraging, also on the new lode in the 58 fm. level.—STEVEN DAVEY, WM. POLKINGHORNE.

The CHAIRMAN said—Gentlemen, at our meeting in June last we reported that a new mining house and carpenters' and smiths' shops were nearly completed, and that we had commenced the erection of a whim-engine, engine-house, and boiler, and also that a new air compressor, with the needful air receiver and air pipes, were on hand. This work has all been done; the steam-engine is now drawing the stuff from the Highburrow shaft, one boring machine is in operation, and we expect very shortly to have two more boring machines at work. During the last month I visited the mine on different days, spending several hours there, and I cannot but feel convinced that we are making some progress, although it is but slight, towards a better position. Our agent's report, which you have just heard read, I have every reason to believe, is strictly correct. I have not been underground to verify it, but I have no doubt it states correctly the present condition and prospects of the mine. Our able secretary has supplied us not only with a statement of our last five months' working, but also a general account, which you have in your hands, of the first twelve months' working of the company, and that account will shew every shareholder at a glance how the call money and the money received for ores have been applied; and I venture to think that these accounts will compare favourably with those of any similar undertaking in Cornwall. (Hear, hear.) I have now to move that the accounts and the report of the agent be passed and adopted, and printed and circulated amongst the shareholders.

Mr. H. WADDINGTON seconded the resolution.

Mr. HERITAGE asked the meaning of the item 207*l.* 3s. for agency.—Mr. H. WADDINGTON said it was for the services of Capt. Polkinghorne, Capt. Davey, and the clerk at the mine.—Mr. HERITAGE said it would be more clear if the words for "local agency" or something of the kind were used.

The CHAIRMAN said the suggestion should be attended to in future accounts.

Mr. HERITAGE asked what was the amount of arrears of call?—The SECRETARY said the arrears had now been reduced to 142*l.* 10s., and the payments were still coming in.

A SHAREHOLDER expressed an opinion that the shareholders in arrear should be made to pay up.—The CHAIRMAN said he agreed with that, and the committee would take the suggestion into consideration.

Mr. LEBY said the members of the committee were all large shareholders, and had taken care that the money had been spent with the greatest economy, and to the best advantage. He thought if they looked at the agency charges they would see it was a small amount, being only at the rate of 15*l.* 4s. per month for three persons.—The resolution was then put and carried.

Capt. DAVEY said he had been connected with the mine for seven or eight months. When he joined, the mine was comparatively poor. They had passed through some not uncongenial but rather congenial ground. They passed through a bed of elvan, which was always considered to be the precursor of good events. The prospects in the bottom of the mine were better than eight months ago, and they could boast of getting some good tinstuff from the bottom of the shaft. In the eastern end they had a good tinny lode, which he valued at 8*l.* per fathom. In the western end within the last week they had come in contact with some little crossings, which had somewhat disordered it, but these were merely casual, and in many instances had improved lodes rather than otherwise. Whether it would do so in this case remained to be proved. They had made a new discovery in the 58 fm. level, which was very encouraging—that was a copper lode producing a great quantity of arsenical mundic, with some rich grey copper ore. From the Chairman and Mr. Waddington he had derived great benefit in carrying out the works. He hoped as they went on with the development of the mine that the time was not far distant when the shareholders would receive some remuneration for the outlay they were making. It was his opinion and the opinion of others that they had a good mine in North Penstruthal. They had only just got away from the cross-cut north. When they first got out of the cross-cut north the lode was about a hand's breadth wide, but on opening up about 4 fms. the lode was now at both ends from 2 to 3 ft. wide. That was a new lode altogether, as they had not driven north before. He believed the two lodes would form a junction between the present bottom and the 120. It would take been five to seven months to reach that junction.

Mr. H. WADDINGTON said he believed they would have a good deposit of ore at the junction alluded to. The lodes in the North Basset and Buller were rich from the 60 down to the 100. He hoped by means of further boring machinery they would make good progress. This was not a wet mine. Mines in the granite were not often wet. If all the mines in Cornwall were to stop it would not affect this mine as far as regarded water.

On the motion of the CHAIRMAN, seconded by Mr. HERITAGE, a call of 5s. per share was then declared.

Capt. DAVEY said he might mention that they had another cross-cut driving south which was driven about 81 fms. They had a lode just about 4 fms. in advance of the present end, which went by the name of the 40-ft. lode. They had elvans in front of them, which they considered were underlying the lode, and in a month or six weeks from the present time they expected to cut that lode. Looking at the large excavation on the back there must have been mineral there, or the ground would not have been turned over as it had been. He was looking forward to meeting something good at that point. If the boring machinery worked as well as it had done, he thought they would reach it in about six weeks.

The CHAIRMAN then announced that Mr. Granville Sharp had resigned his position as one of the trustees, and Mr. Waddington had consented to act in his place.—A formal resolution was then passed indemnifying the lessees against all liabilities.

A vote of thanks to the Chairman and committee closed the proceedings.

SOUTH PENSTRUTHAL MINING COMPANY.

A four-monthly meeting of shareholders was held at the offices of the company, Drapers' Gardens, on Wednesday,

Mr. JAMES WALTON in the chair.

Mr. EDWARD ASHMEAD (the secretary) read the notice calling the meeting. The following report was read from Capt. Davey:—

Nov. 13.—Since the last meeting we have completed the erection of the 60-inch engine, which was started to work on September 7, and is working well, since which we have cut down or enlarged the engine-shaft 30 fms., forked the water 23 fms. below the adit level, fixed the pole to the adit, and are now preparing to fix the drawing lift to the 20.—Flat Rod Shaft: We have enlarged this shaft from surface 9 fms. below for the reception of pitwork, and have cut angle-bob plat at that point. The men will be engaged for some time cutting down this shaft, as we find it too small in places to receive the work; also cut balance-bob pit at surface, but which took more time than we first calculated, owing to the hard rock in which we had to sink. The 25-inch whim engine-house has been built, and engine (with drawing cage, capstan, and boiler) erected, and will be started to work in the course of the week. Our surface operations are progressing as fast as could reasonably be expected, considering the very wet weather we have had here for several weeks past. The masons will complete the building of the main balance-bob stand in a few days. Carpenters are busily engaged putting up shaft tackle, pully stands, &c., necessary for drawing and droping pitwork.—STEPHEN DAVEY.

The SECRETARY, in reply to a question, said the arrears of call now amounted to 307*l.* 15s., and they were still coming in.

Mr. HERITAGE moved that all shares in arrear be forfeited if not paid before the next general meeting.

The resolution was seconded and carried.

The CHAIRMAN said: We have not prepared any full statistical statement, but four months hence we hope to give you annual accounts, as we have done in the North Penstruthal. We have erected pumping and whim engine-houses, with engines and boilers, which cost no inconsiderable amount; and a considerable amount of surface work has been done. In August and September I visited the mine, and was pleased to see the way in which it was laid out. Everything appeared of the most substantial character, and reflected, I thought, great credit upon our captain, who certainly has displayed great professional skill in laying out the works. We have overdrawn the amount we have received, but we have not hesitated to do so, feeling the importance of pushing forward the works. The Chairman said it would be necessary to make a call of 7s. 6d. or 10s. per share, and concluded by moving the adoption of the accounts and reports.

Capt. DAVEY said that below the 23 they had not been able to go, except on the south lode, where a little tin had been raised by tributers. There was a good 60-in. engine on the mine and a good winding-engine for drawing and other purposes, which would be sufficient for some time to come. They had also made good bob beds, and got down the flat-rod shaft, and various other things had been done necessary in laying out a new mine. He believed the property was a good one. The deeper portion of the mine remained to be proved; but looking at the general character of the district, and the fact that there was a body of mundic at the bottom of the mine, he believed that the patience of the shareholders will be rewarded. In five or six months they would get the water in fork at the engine-shaft. He calculated that, including everything, the monthly cost for the next three or four months would average about 400*l.* per month.

The SECRETARY said they were now about 1000*l.* on the wrong side, and they must provide for the next four months.

Mr. H. WADDINGTON referred to two or three of the chief points, and said he expected a very great improvement at the junction of the tin lode north of the copper lode. But apart from that he believed they would get handsome returns of tin from the tin lode as it was opened up. He looked with great confidence to the future of the mine.

A call of 7s. 6d. per share was then made, payable on Dec. 15 next.

A formal resolution indemnifying the lessees against all liabilities was then passed, and a cordial vote of thanks having been passed to the Chairman and committee the meeting broke up.

LUSITANIAN MINING COMPANY.

The general meeting of shareholders was held at the offices of the company, Queen-street-place, on Tuesday,

Mr. ROBERT HENTY in the chair.

The CHAIRMAN said the directors had called the shareholders together, the company being as nearly as possible in a state of collapse. He was the only director present, the others having died or gone away, or being otherwise unable to attend. At the meeting in June he entered fully into details as to the circumstances of the company, and it was unnecessary, therefore, to go back to them now. Since their last meeting the directors had involved themselves in greater responsibilities than they had entailed before, because they believed that with a mine in full working order, and of so great promise, there would have been no difficulty in finding a purchaser; but this they had not been able to do, except under conditions they did not feel justified in accepting. They had come to this condition—that the directors declined to enter into any further responsibility, and a resolution would be proposed to the shareholders for the winding-up of the company. He moved, in the first place, that the report and accounts be received and adopted.—Mr. DONAGAN seconded the motion, which was carried.

The CHAIRMAN then moved—"That it is proved to the satisfaction of the members of the company that the company cannot, by reason of its liabilities, continue its business, and that it is advisable to wind-up the company."

Dr. BROOKY seconded the motion, which was carried.

A resolution was then passed appointing Mr. Charles Hurlbatt liquidator of the company.—Mr. JEPPS moved a vote of thanks to the directors, which was carried unanimously.

WEST GODOLPHIN MINING COMPANY.

The first meeting, under the auspices of its new proprietors, was held at the offices of the Secretary (Mr. R. Mitchell), Union-Court, Old Broad-street, on Saturday,—Mr. R. W. GOOLD in the chair.

The CHAIRMAN said: I believe you are acquainted with the fact that West Godolphin was formerly worked, and worked to a considerable extent, as will be seen by a reference to the published statements. It was closed some two years ago, and is now full of water. All the evidence of the experts in Cornwall would go for very little now, because they could not get underground, and we are able to form an opinion almost as well and as conclusively as the can. The shaft of West Godolphin was sunk 80 fms. deep. The old workers did a good deal in the 60 fm. level. They sunk to the 70 fm. level, from which they were deriving the principal portion of the ores they were getting when they closed, and they have also driven what I believe to be a large cross-cut at 80 fms. deep, and cut the lode there; but strange to say, although in the 70 they were getting tin at the rate of about 15 tons a month, with a good deal of regularity, they never took the trouble when they had cut through the lode in the 80 to drive east and west on it more than a few feet. I base this opinion upon the printed statements which I have here. When they stopped they allowed the water to rise from the 80 to the 20, and there the rods were disconnected, so that there remain 60 fms. of pumps and pitwork, all in good condition, and underground. There are trams, tram-rails, and wagons, all of which will benfit us. At surface there are two large engine-houses, which we could not put up under a very considerable sum of money. There is a large drying-house sufficient for 400 or 500 men, an excellent counting-house in complete order, and also a large boiler-house, the latter lacking the roof only; and as the house is calculated to contain three 10-ton boilers, there will be ample for all our requirements. There is also a very good smithy and powder-house. All these things we shall get in with the original purchase. Half a mile from this there are upon the floors eight heads of stamps, a burning oven, a very large number of frames, and a few buddles. There is also a water-wheel and eight heads of stamps, possession of which we shall get on an agreement concurrent with the terms of the lease for a payment of 10*l.* a year. With regard to the value of the property underground, it is almost impossible to get any direct evidence. I have depended mainly upon the evidence of Capt. Thomas Hodge, who has been a very valued servant in Wheal Grenville for the last five years, and whose judgment we have never been able to impugn. When he first surveyed the mine under all kinds of difficulty he gave his opinion about it, and I am bound to say that we have progressed in such a satisfactory manner there as to justify to the fullest extent everything which Capt. Hodge led us to expect. We have also this to encourage us, that a great number of people in the neighbourhood are perfectly willing to enter upon this property, and take tribute pitches at once. Capt. Josiah Thomas was called in to inspect the mine a year or so before it stopped, and I thought it would be a very valuable thing to me if I could get hold of his report. Some gentlemen who had made up their minds to become largely interested in this mine, in company with myself, went to Cornwall, and had an interview with him. I asked him if he would look up his report, and he promised with pleasure to do so. I received a letter and a telegram stating that although he had searched for his memoranda he could not put his hands upon them, but perhaps the late secretary would let us have his report. He said, however—"I have the clearest impression upon my mind that when I was underground at West Godolphin I came to the conclusion that they had a promising property, and one they ought never to have stopped." I have informed myself on the history of the old undertaking during the last few months of its existence. Here is the statement. During the last five months of their existence they sold 76 tons 12 cwts. of tin and 37 tons of copper. The highest price realised for the tin was 34*l.* 12s. 6d., and the lowest was only 30*l.* 12s. 6d. Their costs during those five months were 344*l.* 9s. 10d. Their total sales were 2848*l.* 19s. 2d., and this was the result, that in May they lost 210*l.*, June 53*l.*, July 73*l.*, August 113*l.*, and September 140*l.* Taking into account the price they were getting for their tin, we cannot be surprised at these losses, and the only wonder is that they were not greater. During those five months they had been accumulating their leavings, and the present workers, who have only eight heads of stamps, have sold 1180*l.* worth of tin since the concern was shut up, which the old company ought to have sold. If they had been working with 24 heads of stamps they could very easily have converted all that into their own pockets during the five months under review. They would have made a profit instead of a loss, so that they could actually say that they were standing in the position occupied by only three or four mines in Cornwall, which are unique, and which carried out operations at that time without making a loss when tin was 30*l.* per ton. If we had taken the mine immediately they left it, along with the leavings, even adding the extra costs, the profits would have amounted to about the sum of 1200*l.* with tin remaining at the present price per ton. There is no reason, however, why that should have been all the profit they got. In the 70 they had not extended their drivings. They had driven the long cross-cut to cut the lode, and only just got through it. They were getting 50 tons of tin out of one level. If the 80 had been opened upon it would have made all the difference to them. It was getting out these figures which determined me that I, at all events, would be happy to become an adventurer in West Godolphin. Such is the property we have become possessed of, and now what are we to give for it? I have always have declined to have anything to with a company where every shareholder did not stand in the same relative position. (Hear, hear.) The buildings are estimated at 2050*l.*, but you will only be asked to pay a sum of 200*l.*, which will include the getting of the lease, the getting of the concession, all the materials there, the legal costs, and the whole thing handed over to us without any further expense. This sum will also include the expenses of four gentlemen (10*l.* each) who chose to initiate this thing, and put down their own money for going down to Cornwall and spending the best part of a week.

A SHAREHOLDER: A most reasonable charge.

The CHAIRMAN: My conviction is very strong that in the next twelve months from to-day we will be returning tin and paying dividends, provided only tin keeps just where it is. I do not want to see it much higher. I am inclined to think tin will touch 120*l.* before January is past, but I believe the interests of legitimate tin mining will be much more largely advanced, provided tin does not see any fabulous price again. If we can see black tin rule throughout the year at 55*l.* to 65*l.* a ton, it is everything we should desire. With such a price West Godolphin will be one of the prettiest mine in the county, and one of the best paying. (Cheers.)

Mr. MITCHELL then read the rules and regulations of the Cost-Book system, under which the mine is constituted.

Mr. LANE said that when he came to look into the facts connected with this undertaking, he thought "what timid men the former adventurers must have been." Look at the accounts, and there was only a trifling loss even in the worst of times, and so he came to the conclusion that if developed with spirit this affair could be brought to a very successful issue. He knew from the district that this mine had only been partially developed, and could only beg his hearers not to regard this as an ordinary mining speculation. Such was the confidence felt in this concern that within 2½ hours 10,000 shares were subscribed, every one of which had been paid for. He only wished those who had subscribed to hold their shares for six months. He concluded by saying that nothing paid so well as mining properly carried out, and by moving—"That the rules and regulations now be read, and they are hereby approved and adopted."

The motion was agreed to unanimously.

Resolutions were subsequently passed appointing Messrs. R. W. Goold, F. G. Lane, Wm. Bellingham, and R. C. Goodwin a committee of management, and Mr. R. Mitchell the secretary. Capt. T. Hodge, of Wheal Grenville, was also appointed manager to superintend all operations at the mine. The necessary engines and other appliances for the re-opening and vigorous development of the property will be erected without delay.

DEVON GREAT CONSOLS.

At the ordinary general meeting of shareholders, to be held on Wednesday, the accounts will show a credit balance of 7014*l.* 6s. 4d. The sales of copper during the half year have realised 12,846*l.* 11s. 2d., and the arsenic 15,390*l.* 10s. 5d. Subjoined is the report of the directors to be presented:—

The directors have to report that the sales of copper ores for the six months from April 22 to Sept. 23, 1880, amounting to 4854 tons 2 cwts. 1 qr., realised 12,846*l.* 11s. 2d., or an average price of 2*l.* 12s. 3d. per ton. The directors would, however, here remark that although the price of copper has been somewhat fluctuating and lower, still they consider the copper smelters ought to have given the company a much higher price for these sales of ores, made at what is called the Cornish Ticketing, inasmuch as the average produce was 5⅞, and the unit obtained only 9s. 7d.; whereas, with a produce of only 5 in the previous half-year, 10s. 9d. was given per unit.

The desirability of selling this company's ores at Swansea, where there is greater competition, instead of at the Cornish Ticketing, unless better prices can be obtained, has been brought before the board, and is still under consideration. The amount received for arsenic during the six months has been 15,390*l.* 10s. 5d., as appears in the accounts under the head of Reduction Works. It will be observed that whilst the receipts have been for six months the expenditure has been for seven months (28 weeks). This is owing to there being thirteen (4 weeks) monthly pay days, and the extra month became payable only on the last day (Oct. 30) of making up this half-year's accounts.

The large outlay necessary for the erection of the additional machinery at Watson's part of the mines has been accomplished. A cargo of staves from Norway, which, with freight, &c., amounted to about 550*l.*, is also included, and there are also items for rock-drills and land damage, &c., charged in this half-years accounts, amounting to 330*l.*, and a further sum of 260*l.* has been paid on account of the new leases, &c., granted by His Grace the Duke of Bedford, in which is inserted 1-18th royalties instead of 1 12th as heretofore. The half-year's accounts now submitted show that after the payment of the 152nd and 153rd dividends in the six months, amounting to 9216*l.*, and the payments of the several amounts above named, amounting to about 1140*l.*, there remains the satisfactory sum of cash and bills receivable in hand of 7014*l.* 6s. 4d., as against a credit balance of only 2330*l.* 0s. 2d. in the corresponding half-year of 1879, and 1661*l.* 2s. 6d. in 1878. In the last half-year's accounts was stated the heavy outlay incurred in rock-boring machinery, &c., and the board now point with satisfaction to greater expedition in driving the levels, as mentioned in Capt. Isaac Richard's (the manager) very full and encouraging report annexed to that of the directors.

A further outlay for an air compressor and rock-drills, tubing, &c., is now under the consideration of the board in order to still more vigorously develope and open out the ore ground in these extensive runs of mines. A renewal of rails and repairs to some portion of the company's railway will be necessary, and the materials for this purpose have been ordered. Some further expenditure will also be necessary on the arsenic works.

Notwithstanding the heavy outlay incurred during the last 12 months, and to which the attention of the shareholders has been directed, there have been already three quarterly dividends paid this year, amounting to 13,312*l.*, and another quarterly dividend will be declared by the board on the day of the half-yearly meeting of shareholders. The directors afforded the shareholders an opportunity of visiting the mines on Oct. 6, and those who were there on that day expressed themselves much gratified with their visit.

The directors hope and anticipate that as the trade and commerce of the country continue to progress they will receive better prices for this company's copper ores and arsenic, and thus enable them not only to pay to the shareholders satisfactory dividends, but at the same time keep in good and efficient repair as extensive and valuable a stock of plant and machinery as is in the possession of any mining company in this country.

Capt. Isaac Richards concludes an elaborate report upon the progress made in the further development of the different lodes throughout the mines, and upon the extent of ground explored during the past six months, and the present prospects in view, by remarking that in the 205, west of the new shaft, the lode is very large, and of a fine character, and judging from the encouraging indications presented they have great hopes that good discoveries will also be made in this direction. In the 175 and 185, west of Railway shaft, on the south part of the new south lode, the indications are also good, and they look forward to similar results from these promising points of operation. At Watson's the lode in the 76, both east and west of the engine-shaft, being of good size—fully 3 ft. wide—and of a promising character, containing good stones of arsenical mundic and copper ore of good quality, we entertain great hopes that at an increased depth, and also as the workings are extended east and west in the present levels, good discoveries of mineral will also be met with in this part of the company's property. It is important also to observe that by means of the rock-drill machinery, which has been adopted on an extensive scale in the different workings for some considerable time, they are are enabled to double their speed as compared with hand labour, a fact of great consequence in connection with the further development of these great mines. The ore reserves throughout the mines amount to 24,630 tons, and arsenical mundic 21,000 tons.

DEVON GREAT UNITED COMPANY.

At the ordinary general meeting of shareholders on Wednesday, the subjoined report of the directors will be submitted:—

At this the first ordinary general meeting the directors have much pleasure in meeting their fellow shareholders, and to submit to them a statement of accounts from the commencement up to Oct. 31, from which it will be seen there is a cash balance in hand of 4309*l.* 13s. 2d. The 36-in. cylinder pumping engine was set to work on Oct. 6 in the presence of a large number of shareholders, who expressed themselves well pleased with everything they saw and heard on that occasion. The report of the local management shows that a large amount of work has been accomplished in a very short period. Every exertion is being made to get the water out from the bottom of the mines so as to commence operations in obtaining returns of copper ores and mundic.

The agents, after reporting upon the various points of operation, say that at Willesford's shaft the casing, dividing, and footway have been completed to 20 fms. below the surface, and this work will be continued below this point as the water is drained from the mine. They consider that in one month from this time they shall have drained Watson's engine-shaft to the bottom or 60, on the completion of which a line of rods will be laid from Watson's to Willesford's shaft, and the draining of Willesford's shaft below the 60 will at once be proceeded with. They will also get on as fast as possible with certain necessary work at surface, such as making a road across the valley towards the Devon Great Consols Railway, so as to take all ores and materials to and from the shipping place at Morwellham at the least possible expense. Repairs to dressing floors and arsenic works will be proceeded with as required. In conclusion, they beg to say that everything has gone on from the commencement in a most satisfactory manner, and the more they learn of the company's property the more convinced are they of the ultimate success of these mines.

PANULCILLO COPPER COMPANY.

The following report of the directors will be submitted to the meeting of shareholders to be held on Nov. 30:—

The directors have pleasure in submitting audited accounts for the twelve months ending June 30 last in Chili, and Sept. 30 in London.

The accounts for the first half of this period were circulated among the shareholders in April, and showed a net profit of 12,773*l.* 5s. 7d., by which the balance at debit of profit and loss account was reduced to 6631*l.* 0s. 10d.

In the second six months the net profits amounted to 14,434*l.* 13s. 6d. (making a total for the twelve months of 27,212*l.* 19s. 1d.), and which, after extinguishing the sum of 6531*l.* 0s. 10d. remaining at the debit of capital as on Dec. 31 last, leaves a balance, as exhibited by the accounts, of 7903*l.* 12s. 3d. to be dealt with. Out of this balance the directors propose to pay, on Dec. 4 next, a dividend of 2s. 6d. per share, free of income tax, for the half-year.

In the year now accounted for 5695 tons of regulus were produced at Panulcillo, containing, by analyses, 2738 tons of copper. The average price realised was about 817·09 per quintal metrico. The directors refer to the mining report for full details of the position of the Panulcillo Mines.

Debentures of 100*l.* each, for a total sum of 40,000*l.*, were allotted in November last in view of the maturity of debentures for 48,000*l.* which were paid off on Dec. 15, 1879, being the balance then outstanding of 80,000*l.*, issued in December, 1874. The directors have appointed Mr. Henry Denison Pender to fill up the vacancy at the board caused by the death of the late Mr. James Andrew.

The two directors who retire by rotation at the meeting are Mr. Alphonse Henri Berthoud and Mr. Henry Denison Pender, and who, being eligible, offer themselves for re-election. The auditors, Messrs. Harding, Whinney, and Co., offer themselves for re-election.

[For remainder of Meetings, see to-day's Journal.]

STEEL RAILS FOR ROUMANIA.—Tenders for the supply of 6000 tons of steel rails, and 500 tons of permanent way fittings, have recently been requested for the Roumanian State Railways, and to the surprise of German manufacturers, who, with the Austrians, expected to hold the monopoly for the Roumanian supply. English tenders were received, which, although somewhat higher than the lowest German offers, compensated for the price by the length of the guarantee. The lowest English tender was that of Messrs. Bolckow, Vaughan, and Co.

ECONOMIC ROTARY ENGINE.—Among the novelties on view at the Engineering Exhibition which has been held during the week at the Agricultural Hall, HODSON'S patent rotary engine, shown by Mr. Norwood Earle, of Cannon-street, is especially worthy of notice. With a very simple but ingenious expansion valve the inventor overcomes without difficulty the objection generally made against rotary engines that they are not economical, and by the careful study of every detail, assisted by experiments extending over four years, he has been able to produce engines which are regarded as the perfection of mechanism. The engines are so simple in design that the principle on which they are constructed can be readily understood, and it is claimed that the friction being reduced to a minimum they are remarkably free from wear and tear, and having now been in use for several years and proved a success, they recommend themselves for general adoption. As regards cost they compare satisfactorily with other engines, the price of the largest one now exhibited, which

works up to 8-horse power, being only 65*l*. They can be driven with safety at a speed of over 1000 revolutions per minute, but the patentee has found from experiment that they can be worked most economically at a speed of from 600 to 700 revolutions, and those now exhibited have governors attached, limiting them to about that speed. The engine has been found by experiment to drive electric light apparatus with greater regularity than any other small engine of similar size or power, and can be driven by steam varying in pressure from 10 to 120 lbs. For a large variety of purposes such an engine would be invaluable.

MAMMOTH COPPEROPOLIS OF UTAH.

DIVIDENDS WITHOUT PROFITS.

An important case arising out of the declaration of a dividend by a board of directors when in fact no profit had been realised, and there was, therefore, no available fund wherewith to pay such dividend was heard before Vice-Chancellor Sir Charles Hall on Monday. The matter came before the Court upon a summons taken out by the official liquidator on July 7, 1879, to compel Lord Claud Hamilton, John Elliott, Charles Cooch, Morris King, and William Henry Spratt, as late directors of the company, to pay to the applicant for the purposes of the liquidation 3452*l*. 5s., being the amount alleged by the liquidator to have been improperly paid by them out of the company's assets as a dividend at 5 per cent. for the quarter ending Michaelmas, 1872, together with interest on the said sum. Mr. W. Pearson, Q.C., and Mr. Northmore Lawrence were for the liquidator, and Mr. Hastings, Q.C., and Mr. Brooksbank were for the directors. The hearing of the summons has been before the Court on several previous days, but was not finally settled until Monday.

The allegation of the liquidator was, in effect, that the directors declared and paid a dividend at a time when there were not any available profits for such a dividend, and that it was in fact paid out of capital, and not out of profits. The answer of the directors was that they were, from the facts and figures before them in reference to the assets and workings of the mines of the company 5000 miles away from London, perfectly justified in declaring and paying the dividend. The evidence was voluminous and conflicting, but the Vice-Chancellor, without going into the questions as to the state of the assets at the time of declaring the dividend, or the balances, debts, and the conduct of the directors in keeping the accounts, and so forth, said he should base his judgment upon the view that the claim now made was a stale demand. He would not go into the question as to the duties of the liquidator in reference to shareholders and creditors, but looking at the matters in the light which he did, more than six years having elapsed between the declation of dividend and the summons, he considered that, even assuming the dividend to have been improperly paid, it would be an injustice to require the respondents now to refund, after the lapse of so many years, a sum of money which they could not expect to recover from the shareholders who received the dividends, to whom they were to look for indemnification. He would add that nothing had come before him on which any charge of fraud or impropriety against the directors could be based. Under these circumstances he must dismiss the summons, with costs against the liquidator.

THE GOLD RICHES OF VENEZUELA—No. IV.

By the last mail advices have been received from Venezuela reporting the progress that a gold mine quite recently opened at Cicapras, in the Pastora district, is making. They are signed by Mr. C. C. Fitzgerald, C.E., M.E., the superintendent of the great gold mine of El Callao, and they will be found of great interest as affording further and convincing proof of the extraordinary richness of the locality.

TRANSLATION.

Assays performed by Mr. C. C. Fitzgerald, C.E., M.E., upon various minerals extracted from the exploratory workings of the Alianza de Cicapras Mining Company:—

No. 1—Aug. 10, 1880: 2 ozs. of the mineral taken from the lode and treated by chemical processes gave a result of 180 ozs. of gold (940 fine) per ton, which at the rate of $22 per ounce is equivalent to $3960 ($256.) per ton.

No. 2—Aug. 21: 1½ oz. of the mineral from the same lode, and similarly treated, gave as result 225 ozs. of gold (900 fine) per ton, which at $21 per oz, is equivalent to $4725 (984*l*. 10s.) per ton.

No. 3—Aug. 22: 2 ozs. of the mineral taken from one of the outcrops of the lode and assayed as before, gave 72 ozs. of gold (900 fine) per ton, which at $21 per ounce is equivalent to $1612 (335*l*. 16s.) per ton.

No. 4—Aug. 26: 3 ozs. of the mineral taken from near the wall of the lode, containing sulphides (this portion of the lode has a width of 15 ft. of a mineral apparently quite equal in quality). Result obtained, $56 (11*l*. 14s) of gold per ton.

No. 5—Sept. 15, 16: Experment made practically by the use of machinery, not by chemical process: 30 lbs. weight of material taken from the side of the lode next the wall in its continuation lower down. This part has a thickness of 17 ft. The sample taken of this material represents precisely the mean quality of all the material for a depth of 17 ft. vertically. The result obtained was 3·32 parts of an ounce of gold of 23 carats fine. Calculating it, however, at only 18 carats, or (say) $20 per ounce, we obtain a result in free gold according to the system of machinery which I intend to adopt of $123·75 (25*l*. 15s.) per ton. From this same sample I separated the sulphides, which represent 25 per cent. of the whole mass of the material, and obtained a result of $1200 (250*l*.) per ton. Thus:—

In free gold	$ 123·75
In sulphides	1200·00
Total produce	$1323·75

Equal to 275*l*. 15s. per ton.

As chemicals are difficult to carry and very delicate, I have resolved not to use them, and, therefore, I propose to extract only the free gold, separating the sulphides and leaving them to decompose spontaneously under atmospheric influences, a process that will occupy from six to twelve months. By this mode of procedure at the end of each year there will be an accumulation of not less than 1000 tons, which may then be beneficiated with the certainty of obtaining an average of $1000 (208*l*. 6s.) of gold per ton.

No. 6—Sept. 19: 20 lbs. weight of lodestuff, free gold, worked in the same manner as the former trial, by machinery, gave a result of 9-100 parts of an ounce, or at the rate of 9 ozs. of gold per ton, which at $20 per ounce equals $180 (37*l*. 10s.) per ton. The sulphides from this sample were not tested, being of the same quality as those of No. 5 trial.

I am of opinion that at a depth of 200 to 300 ft., or perhaps less, the various portions of the vein will consolidate into one strong and great lode.

El Callao, Sept. 19. C. C. FITZGERALD, E.M.C.

Cuncipati, Sept. 16: To Mr. C. C.. Fitzgerald, Superintendent of the Callao Mining Company:—

SIR,—Having assayed a quantity of sulphides from the Cicapras Mine, I have obtained a result of 48 ozs. of gold per ton. I congratulate you on such an eminent success. E. S. COLINS.

We shall watch with interest the future development of gold mining in these regions, and trust shortly to lay further information concerning them before our readers. Certainly Venezuela seems destined to come well to the front amongst the gold supplying countries of the world.

THE COMPANIES ACT, 1862.—At the Sheffield Townhall on Wednesday the Sandiacre Wagon Company (Limited), and their manager, Richard Evans, of Rotherham, were summoned for several breaches of the Companies' Act, 1862. It was alleged that the defendants had not kept a correct register of the shareholders, that they had not entered the particulars of the calls made, and that they had not properly entered the transfers of shares. The case excited considerable interest, and the Court was crowded. A mass of evidence was given in support of the informations, and on behalf of the defendants it was submitted that there was no fraudulent intention, but that the omissions were simply the result of carelessness. The stipendiary held that three cases of not entering upon the register certain calls paid by the shareholders had been made out, and that there had been a similar omission in regard to the transfer of shares. He attributed the omissions to carelessness on the part of persons employed by the company. A fine of 4*l*. with 6*l*. 15s. costs was inflicted. Had the information been laid for every day in default the fines would have amounted to several hundred pounds.

NEW PUMPING ENGINE.—The mines of El Bote, in Mexico, are about to be drained by means of a powerful horizontal condensing engine, designed by Mr. Darlington, and made by the celebrated firm James Watt and Co., of Soho, Birmingham. The steam valves are perfectly balanced, and are fitted with variable expansion gear, so as to apportion the steam to the work. The pumps are coupled directly to the piston-rod, the latter being in connection with a fly-wheel. The piston and pump rods are always in tension. The engine is designed to work under a pressure of 80 lbs. of steam per square inch of piston, and to run from three or four to 15 or 20 strokes per minute. The diagrams obtained fr m this engine are of the most perfect and satisfactory character and indicate that the duty will probably not be surpassed by any Cornish or differential engine yet erected.

MARKET ECHOES, AND MINING MATTERS.

Thanks to the continued firmness of tin the market for tin shares is steady, but there is a remarkable absence of any animation in business. Tin is now over 92*l*.—a rise of about 2*l*. on the week—and there is every probability of 100*l*. being reached very shortly; therefore, one would expect to see a very lively share market, but for some cause or other—we referred last week to the most probable retarding influences—the public just now are absorbing very little stock. This state of affairs on a steadily rising market for the metal cannot, of course, last long; investors will not continue to neglect the present fine chances of making some handsome profits before the year is out; therefore, we may look for a great increase in the demand for shares, and when once a good demand sets in prices will rush up.

Capt. Opie, who for some years has been an under agent at South Frances, has been appointed by the committee of management to succeed Capt. James. The choice is considered a good one, as the new agent has a complete knowledge of the mine, and his qualifications as a good practical miner are spoken of very favourably. We trust that South Frances under Capt. Opie has many years of profitable working before it.

It is something astounding that the public are not tired of supporting the various Indian gold schemes, which day after day in steady succession advertise their suddenly discovered claims upon the pocket of the British investor. Within the past fortnight four or five new companies have appeared, and although there must be now something like 20 such companies before the public, representing a capital of about 2,000,000*l*., the supply does not seem to be exhausted. And all this money has been subscribed on the strength of discoveries which may or may not prove to be substantial, and when it is an open question whether, even should the gold-bearing reefs yield in depth, they can be worked to commercial success. Surely it would be wiser for investors to wait until one or two of the properties have been thoroughly tried before placing capital in an enterprise which may entail enormous loss hereafter. But we are now in the midst of a mania, and warnings are of little use. The last gold mania—that of 1852—cost the investing public many hundreds of thousands of pounds. Nearly all the money subscribed was utterly lost.

Prince of Wales's shares, after rallying, have become extremely flat. There is a hitch in some of the transactions alluded to last week (the sale of a large number of shares by the agent), and it seems to be feared that shares which were supposed to have been placed may be thrown on the market again. Hence the fall. It is said, on authority that ought to be reliable, that the mine continues to look well. If this is so the present fall can only be temporary.

A new rule affecting the days of settlement has just been promulgated by the Committee of the Stock Exchange. The next settlement will take place on Dec. 2, and after that date settling days will occur every alternate Thursday. Thus there will be 26 settling days in the year instead of 24, as heretofore, and the expressions "mid-month settlement," "end month settlement," will become obsolete, There will be three settling days next month—Dec. 2, 16, and 30.

The Tankerville-Pennerly-Bog amalgamation scheme has been splendidly supported by the old Tankerville shareholders and others, many more than the 36,000 shares for allotment having been applied for. The officials, we hear, were overwhelmed with letters and telegrams from persons outside the old company, some shareholders in the defunct Bog and Pennerley Companies asking for allotments, but of course it was impossible to satisfy all applicants, more especially as the Tankerville shareholders had the priority in application, a privilege of which they were not slow to take advantage. The shares of the new company are likely to be largely dealt in upon the market.

We hear of a good improvement at North D'Eresby. We are only able this week to refer briefly to the fact, but hope to write more on the subject next week. JAMES H. CROFTS.

From Mr. JOHN B. REYNOLDS:—A cheery note has to be struck, for business makes steady but very satisfactory progress in every department. On the Stock Exchange there has been a slight disturbance of prices, but the recovery soon set in, and the markets close with a good appearance. There is absolutely nothing to shake confidence in any direction, and whatever may be our shade of politics it cannot be denied that we have a peace-keeping Government, with a wonderful majority at its back, and bent upon the development of trade. We have, moreover, in Her Majesty's opposition leaders who are fairly loyal to the Government in one or two perplexing matters, which will be successfully dealt with and disposed of.

The metal markets have been again remarkably firm, with an upward tendency. The public, after recent fluctuations, and not very creditable speculation, have been quiet; thus shares have not been so favourably influenced as holders expected. But prices are firm, and buyers are now coming forward. Should the metal markets continue to improve we shall have a stronger demand for good stock than we shall be able to supply at anything near present rates. Moreover, meetings are coming off where very satisfactory results will be shown. East Pool shares have advanced, as I anticipated, and the dividend on the 29th will be as satisfactory as usual. South Frances shares should be watched for an early rise. West Bassets are quiet, but firm, at near their highest point. West Kitty meeting is, as usual, looked forward to with great interest, and rumour says that it will be the best ever held. The mine certainly promises to take the lead in the district at an early date.

In the Killifreth market there is an utter absence of life, and no concern whatever is manifested as to the price of the shares. If the mine does not wonderfully improve quickly, therefore, the work of forfeiture and discredit is likely to go on. A London reference office would probably help this concern, and there really does appear to be points of merit which ought not to be overlooked. There is, moreover, evidently an honest intention on the part of the managers, which augurs well. North Busys have been steady at the advance, and the company would do well to get an extension of their limits at once. New Kitty committee may be congratulated on leaving nothing to chance, for on behalf of the company all the mineral rights have been secured which can be required. The anticipated discoveries, therefore, will all be in favour of the shareholders. I see no reason why New Kitty shares should not soon be at 3*l*. each. It must be remembered that the engine will shortly be up and at work, and the water will be out of the shaft, which, at considerable cost, has been sunk for a well-defined object, which will be quickly reached. There are many other mines which are first-class speculations, but want of time and space prevent any allusion to them in these hasty notes.

THE WEEK.

SATURDAY, NOV. 13.—A great desire was shown to get out of railway stocks rather than carry over on Monday, and although when this was seen the dealers quickly dropped prices, selling was still persisted in, and the market closed flat. The most important fall was in British, and amounted to 2½; Berwick and Brighton, A, receded ¾. Large sales of Readings took place, the last price being $23¾, as against $23 in the early part of the week. Arrangements have been made for the vigorous working of a historic silver-lead mine in the West Riding of Yorkshire, lying almost under the shadow of Pendle Hill. Here one of the Pudseys—of Penser Peurdesoy memory—raised such quantities of silver, that it occurred to him to disregard the motto of his house, and think much, not little of self, and so commenced to make the famous Pudsey shillings now rarely met with. This was in the reign of Queen Elizabeth. The exact *locale* of the mine is minutely described in a scarce work to be found in the British Museum, written in the 17th century. I suggested some years ago in the Standard the re-opening of the mines. There can be but one opinion as to the result. Captains Eddy, Nancarrow, Borlase, and others, have been consulted, and are pretty unanimous in their opinions. These mines have been worked at intervals from a very early date. The surrounding Norman churches and ancient chapels are uniformly covered with lead, which in the case of Gisburne, has been done in a very lavish manner. The abbots of the neighbouring great abbeys of Sawley, Whalley, and Bolton possessed lead mines here, and accounted them as one of their most certain sources of revenue. The mines are to be known as the York and Lancaster United Mines (Limited), with a capital of 25,000*l*., in 1*l*. fully paid shares, and they are amply provided with machinery.

MONDAY.—British again gave way, and finished at 90⅝, being a further fall of 1½. Judging from the contango charged to-day (¼ per cent.) there is still a large account open for a rise, no fair opportunity for closing which has yet been offered. Brighton, A, declined to 147, and nothing further was said to-day about large quantities of stock to be taken off the market. It was possible, however, to carry over to-day at the moderate charge of 5/16. North-Eastern rate was quite ⅝, notwithstanding which the stock kept its position. Reading shares improved to 25⅛. Devon Consols were dealt in at 14. The report for the meeting on the 24th inst. was issued this evening.

TUESDAY.—Almost a semi-panic ruled at one time in Reading shares, speculative holders pressing sales at ruinous prices; after touching $21½ the quotation rallied to $23. North British was bid for, on what grounds it would be hard to say, and rallied to 92; to-morrow may show a heavy fall. Caledonian recovered ⅞ (to 114¼), and Brighton, A, touched 147¾. Erie shares receded to 44½, and Pennsylvania to $65; the latter will be quoted ex div. to-morrow, which often induces a fresh batch of purchases.

WEDNESDAY.—North British were heavily sold, and closed at the lowest point. The last price was 89½, showing a fall of 2½. Brighton A recovered ⅜ to 148. The large increase of nearly 14,000*l*. in North-Eastern induced some buying, and an improvement of ¾ took place. Although an enormous amount of Grand Trunk Third Preference was taken up, probably near a quarter of a million, the price receded ⅝ to 46. Reading shares only fluctuated moderately, the price ranging between $21½ and $23. Devon Consols touched 14⅛.

THURSDAY.—The Devon Consols report states the amount received for arsenic during six months to be 15,390*l*. 10s. 5d., and after payment of two dividends there remains a disposable balance of 7014*l*. 6s. 4d. Three quarterly dividends, amounting to 13,312*l*., have been paid in the course of the year, and another will be declared by the board on the day of the meeting. In the course of the account concluded yesterday North British marked the heaviest decline (3 per cent.), from 94½ to 91½. Grand Trunk second preference carried over at 82. The previous account rose to 86¼, and the third preference from 42¾ to 45½.

FRIDAY *(Opening)*.—Consols are again selling at par for the account. Many are realising to buy New and Reduced, which are from 1¼ to 2 lower. Most American shares are better. Eries are $46, and Readings have rallied to $24. Spanish, 20 1/16 to 20 1/16; Unified, 65 to 65¼; Turks, 10¾ to 10½; North-Eastern, 173½ to 173¾; Caledonian, 114⅛ to 114⅞; Brighton, A, 147¼ to 147½; North British, 90⅛ to 90½; Great Western 125¾ to 127; Prince of Wales, ¾ to ⅞; Wheal Crebor, 4½ to 5; Parys Corporation, ⅛ to 1½; Rio Tinto, 18 to 18⅛ Copiapo, 11 to 12; New Quebrada, 5¼ to 5⅝. *Two o'Clock*.—Brighton, A, have suddenly receded 1 per cent., to 158½ to 156¾, a new competing line being again talked about. Dover, A, are ½ higher. Consols for the account are 1/16 lower, and now not easy to sell at par. Emma, 3⅞ to 4¼; Flagstaff, 1⅝ to 1⅞; Erie 45⅛ to 45⅞; Readings, 24⅛ to 24⅝; Atlantic Firsts, 56¼ to 57. North D'Eresby appears to be coming more into prominence on the market, and is being actively dealt in at 1⅛ to 1⅜; shares are likely to be very much higher, almost at once, the prospects being unusually good.—*Four o'Clock*.—Both Erles and Readings are quoted at an advance in the New York prices, but show no fresh change here. Large purchases continue to be made of Pennsylvania shares, and, as was foreseen, the dividend will soon be recovered. Tin is reported as very strong at 92*l*. 10s. South Wheal Frances have improved to 11½ to 12.

FERDINAND R. KITT.

ECONOMIC GILDING OF METALS.

In ornamentation the chief object always in view is to produce the greatest possible effect with the least possible expense, and when so costly a material as gold is employed the margin for economy is the greater. An important improvement which consists in coating metals with a very light but solid covering of gold presenting a very rich appearance—a bright or lustrous surface being obtained without having recourse to burnishing—has been invented by Count de CHASTENET D' ESTERRE, of the Inoxidation and Platinisation Society of Paris. The process, although extremely simple in practice, involves a somewhat long description, as it includes several distinct operations. In the first place, to obtain product A, he dissolves 1 kilog. of pure alum in a sufficient (but the least possible) quantity of water; after it is completely dissolved he pours in 1 litre of ammonia (alkali), whereby the alum is precipitated in the form of a very thick jelly. This precipitate is then placed on a filter in order to drain off as much of the water as possible. The alum is then put into a porcelain capsule and he adds 500 grammes of nitric acid, which has the property of re-dissolving the alum. He then dissolves in another capsule 150 grammes of carbonate of cobalt in 200 grammes of nitric acid; he assists the solution by the gentle heat of a sand bath. When the solution is complete he pours it upon the alum solution; the whole being well mixed he completely evaporates the acids by placing the capsule in a highly heated sand bath. He collects and pounds the product (which is product A) and calcines it in a crucible over a strong fire before employing it in the production of product B, which consists of product A 600 grammes, red lead 3 kilos, 200 grammes, boracic acid 800 grammes, and finely pulverised white glass 200 grammes = 4·800 kilos. This composition is well mixed together and melted in a crucible over a quick fire. When melted, he runs the product into cold water, he dries and then grinds the product by the processes now employed for grinding enamels. The product is ground up with spirits of turpentine, and it should be ground as fine as possible in order to facilitate its employment; if too thick a suitable quantity of turpentine is added.

The gold solution forms product C, to obtain which he dissolves in a porcelain capsule—pure gold 100 grammes, muriatic acid 200 grammes, nitric acid 100 grammes He assists the solution by the moderate heat of a sand bath, and then adds 2 grammes of pure tin and 2 grammes of arsenious acid; he then evaporates about one-half of the acids, he lets cool, and adds 150 grammes of distilled water. The solution is put on one side and the preparation of product D proceeded with. He puts in a glass matrass 150 grammes of turpentined balsam of sulphur containing 20 per cent. of sulphur (such as prepared by all druggists), 40 grammes of Venice turpentine, 200 grammes of essential oil of lavender. He heats in a sand bath until the liquid has attained a deep reed colour. At this point he removes from the fire and lets cool. After cooling, he pours the whole into a porcelain capsule, and then pours in product C very slowly, taking care to well stir continually the product D with a glass spatula. In this operation he employs assistance for pouring and stirring, as it is very difficult to pour slowly with one hand and stir well with the other. When product C is poured in there forms in capsule D a material of a very rich brown colour, and which becomes very thick. If the desired tint does not at once appear, he slightly heats the matter, continuing the stirring all the while, and withdraws it from the fire directly he perceives the change of colour take place, whereupon he allows it to cool, as the gold has now left the acids. After cooling he removes the acids as carefully as possible and lets stand until the next day; he then again removes any little acid which may have separated from the product, and without troubling himself about any it may still contain. He pours upon it drop by drop, taking care to stir well the while, and so long as any reaction can be perceived 50 grammes of ammonia (alkali); this quantity is not, however, always necessary. The mixture is very readily effected and he allows it to rest for two hours, after which he pours in 300 grammes of essential oil of lavender. He heats slightly in order to mix thoroughly and then lets cool; he then filters the product through paper, which he takes care to immerse in essential oil of lavender in order to render it impervious to water. The auriferous liquor passes through while the ammoniacal water remains on the filter. The product so obtained is ready for use on leaving the filter. Many other processes for obtaining gold in this form have been described and applied to porcelain, pottery and glass ware, but they are not suitable for application to metals, and it has been found necessary after trying them to return to the above formula.

The essential feature of the invention, however, is not this particular formula, but the application of bright gilding without polishing or burnishing, or of matt gilding on metals by means of baths, or the application with a brush of gold, either alloyed or pure, held in suspension or solution in fatty bodies or essential oils according to the requirements of the application. What has been described forms the first operation. The second operation is the gilding process proper. For bright gilding on wrought or cast-iron copper or other metals the articles to be gilded should be very clean, that is to say free from oxidation or foreign matters; the articles in this condition are slightly heated to remove moisture, and he then proceeds by dipping a brush in product B and coating the articles therewith, taking care to apply to all parts a sufficiently thick coat, which should be about as thick as a rather heavy coat of oil paint. The articles thus coated are placed in a cupboard to shelter them from dust, and left for a few hours to dry, after which they are heated in a muffle similar to that employed by enamellers, or of a size suited to that of the articles to be operated on. On leaving the muffle the articles present a brilliant blue-black aspect. When cooled the articles thus treated are ready for gilding, which is effected by dipping a brush in the gold liquor D and applying a very light and very even coat of it to the articles. He then allows them to dry for a few hours in a situation sheltered from dust, after which he proceeds to heat the gold in the same manner as for product B, taking care to heat slowly in order to prevent the blistering of the gold layer. The transformation is then seen to take place, the articles passing from the black tint to a brilliant yellow, and at this moment they should be removed from the muffle. The beauty and solidity of this gilding will be at once apparent, it being much superior to electro or mercurial gilding. For matt gilding it is only necessary that the coating of B should be very thin in order that it may remain matt, as the lustre is only due to the thickness of the layer. As the articles remain matt the gilding will be also matt. If desired to obtain bright gilding without using product B, it may be done by polishing the articles beforehand, either by hand tools or in a lathe in the ordinary way. The gold applied to polished metals is also brilliant, but it requires to be laid on much thicker in the case of cast-iron on account of its porosity. A matt surface may be similarly produced upon the metal direct, but it is always preferable to use product B, as three-fourths less gold are required than when it is applied to the metal direct. It will be seen from the foregoing that the process is at once simple and economical.

OUR FOOD.—The first prize of $500, offered by the National Board of Trade of the United States of America for the best essay and draft of an Act to prevent injurious adulteration and regulate the sale of food without imposing unnecessary burdens upon commerce, has been awarded to Mr. G. W. Wigner, F.C.S., F.I.C., honorary secretary of the Society of Public Analysts, &c., of London.

LAKE SUPERIOR.—Some interesting particulars are published of the Menominee iron ore deposits near Lake Superior. The ore tests 55 per cent. Cost per ton, about 8s. The quality is sufficiently fine to make Bessemer iron. The deposits were first worked to any extent in 1877, when 10,405 tons were shipped. This year the shipments will not be less than between 500,000 and 600,000 tons.

Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES—No. CLXVI.*

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BELL PISTON VENTILATORS.

The simplest and oldest of these is the Duck machine of the Cornish miner, or the Harz air box of the Germans. It consists of a long wooden box, square or rectangular in horizontal section, placed vertically. The upper end of the box is open, the lower end has a wooden bottom, through which the air pipe projects to nearly the full height of the box. The upper end of the pipe is provided with an outlet valve, the lower end being connected to the air pipe from the level. Within the air box, and outside the air pipe, the air piston moves up and down. The bell piston consists of a rectangular box, slightly smaller in horizontal section than the air box. The lower end is open, and the upper end is closed with a wood cover, in which there is an outlet valve. The bell piston is attached sometimes by chains, but best by a rigid rod, to a bracket bolted to the pump spears in the shaft. The ventilator, it will be understood, is also placed in the shaft near to the end of one level. The air box is filled with water to within a very short distance of the top of the air pipe, and the bell piston works up and down in the annular space thus filled with water. Sometimes two of these machines are placed side by side, the pistons being connected by a balance lever. During the upstroke air is drawn from the air pipe into the inside of the bell piston, and during the downstroke the valve of the air pipe closes, and that in the top of the bell piston opens, and the air escapes into the shaft. The machine is an exhaust ventilator. By making the valves to open in the opposite direction the apparatus can be converted into a compressor ventilator. During the upstroke the level of the water in the space between the air pipe and the bell piston rises, and that of the water in the space between the bell piston and the air box falls, the difference in level being the water-guage reading of the drag. During the downstroke the converse takes place, the difference in the water level marking the compression. With the usual construction of the machine a comparatively large amount of dead space exists when the piston is at the bottom of its stroke. This can be considerably lessened by a suitable form of the closed end of the bell ventilator.

The piston is generally simply hung from the bracket by chains, and must consequently have such a weight as to descend freely, forcing open the outlet valve. Taking into account the fact that the wooden piston will be much lighter when it is at the bottom of the stroke, the weight of the piston when partly immersed in water at the bottom of the stroke should be greater than the area of the piston in square inches, × by the drag in inches × by 5·19 lbs. On account of the wooden piston being so much lighter in water it must actually be made heavier than would otherwise be necessary, and consequently entails unnecessary labour towards the end of the upstroke. When the ventilator is worked by hand this extra labour is lost, but when worked by the pump spears the extra work is given back again during the downstroke. When the machine is intended to be worked by hand it will be found best, therefore, to make the piston of sheet iron; or if made of wood to have a set of two ventilators; the piston of the one descending whilst the other is being raised. Von Hauer estimates the useful effect at from between 20 to 30 per cent.

By omitting the valve in the piston and inserting a second air pipe through the bottom of the air box, having the valve to open towards the inside of the pipe, air can be exhausted from the one pipe and forced into the other.

The Duck machine, as is evident, is intended only for ventilating single portions of the workings, and is employed principally in metalliferous mines.

One of the largest bell piston ventilators put down is that at the Marihaye Colliery, near Seraing. It consists of a large cylinder 12·07 ft. in diameter and 8·58 ft. in height, made of sheet-iron, open at the lower end, and closed at the upper by a flat cover of sheet-iron. This bell cylinder works up and down in the annular space, 6 in. wide between two cylinders respectively 11·58 ft. and 12·58 ft. in diameter. The annular space between the two cylinders is filled with water. The upper end of the inner cylinder is also closed with a sheet-iron cover, which has 16 trapezoidal openings (in two circles of eight each), which are closed by valves likewise trapezoidal in shape. The valves are hinged on their shortest side, so as to give a great opening with a small motion of the valve. In addition the valves are carefully balanced by counterweights on the ends of short rocking levers. The bell pistons are attached to opposite ends of the steam piston rod by means of two chains passing over two pulleys. The tops of the bell pistons are provided with counterbalanced valves, exactly corresponding to those in the upper end of the inner air cylinder. Two such apparatus are employed together, being placed 33 feet apart centre to centre, and are built in brickwork. The lower end of the inner cylinder has a large opening, with which it communicates with the mouth of the shaft by means of a short drift. Between the ventilating cylinders is placed a steam cylinder, the valve of which is worked by tappet motion. The steam from the steam cylinder is conveyed to a condenser. The bell pistons are guided vertically by means of four sets of wooden guides, which are lubricated with soap.

The theoretical quantity of air exhausted per stroke for each piston (the exact capacity of each bell-piston) is 700 cubic feet, or for the two 1400 cubic feet. At 12 strokes per minute this gives 16,800 cubic feet per minute. According to observations by M. Glepin the volume of air exhausted per minute was 11,400 cubic feet, the drag on the water guage 1·36 in., and consequently the useful work expressed in horse-power amounted to 2·42. The theoreical horse-power of the steam moter is given as 9·3, of which 66 per cent. is transferred to the ventilator, and consequently the useful effect of the whole machine is 39 per cent. According to the above measurements the wind effect is only 70 per cent., and there is, therefore, probably an error in assuming 12 strokes per minute as the rate at which the machine was working at the time of the observations.

The following observations were made by Trasenster. The water-guage reading in the shaft being 1·75 in., the water-guage reading of the air cylinder and the bell piston were 2·7 ins. during the up stroke, and of the bell piston during the down stroke 0·4 in. respectively. When the mouth of the shaft was uncovered, and the machine was made to exhaust direct from the air at the surface, the last two readings were respectilely 0·9 in. and 0·38 in The useful height of the water-guage is thus 1·75 in., and the force necessary to raise the air cylinder valves, as measured by the water-guage, 0·9 in. Together they give 2·65 ins. as the water-guage measurement of the force during the upstroke, or very near the actual measuremens, 2·7 ins. found by direct experiment. The total resistance offered by the valves is measured as 1·3 in., corresponding to 3·037 horse-power, Assuming the wind effect 98 per cent., the same as in the Esperance Colliery ventilator, already described, Trasenster found the following to be the relative consumption of power. Useful effect, 3·711 horse-power; loss of air, 0·323 horse power; resistance of valves, 3·037 horse-power; friction of chains and pulleys, 0·57 horse-power; resistance of the water, 0·083 horse-power.—Total, 7·724 horse-power. The theoretical power of the engine is given at 11·3 horse-power, of which 68 per cent. is transferred to the ventilator, and of this 33 per cent. is employed in useful work.

From the above observations it will be seen that the resistance of the valves is still very considerable, and absorbs nearly as much power as is required for the useful work. Although the counter weights and levers render the valves more easy to open they increase the mass to be moved, and absorb by friction and vibration a considerable amount of power. M. Trasenster believed that a great saving of power might be had if the valves were placed in a vertical position. Another inconvenience attending the use of the apparatus was found to arise from the sensible pause at the end of each stroke, which led to a partial stoppage of the air current in the shaft at the end of each stroke, and a corresponding loss of power. To avoid this M. de Vaux proposes to make use of sets of three instead of two ventilators. The same engineer makes use of a bell without valves to cover the mouth of the shaft, in place of the ordinary folding doors. The lower half of the bell cover rests in an annular space, filled with water. A chain attached to the top of the bell passes over a couple of pulleys, and has a counter weight attached to the other end, which nearly balances the bell cover. Should an explosion or a stoppage of the ventilating machine occur, the shock of the air-current in the shaft raises the bell and allows the air to escape without putting a stop to the current. When the ventilating machine is set in motion the suction draws down the bell and closes the pit's mouth.

STRUVE'S VENTILATOR.—Of this ventilator several examples have been erected, chiefly in Wales. Struve's ventilator erected at Eagles Bush Colliery, near Neath, consists of two brick cylinders, 16 ft. high, and 18 ft. external and 14 ft. internal diameter. Within these cylinders two other cylinders of brick are built, 9½ ft. external and 4½ ft. internal diameter. A bricked culvert, 5 ft. high and 6 ft. wide, passes from the shaft to the outside of the large brick cylinders, and is connected with the interior of the two smaller cylinders by two bricked cross-culverts, which pass to the opposite side of the large cylinders, and open to the air by means of a short vertical shaft about half the height of the large brick cylinder At the end, and above the junction of the cross-culverts with the main culvert, two bricked shafts are built, so as to place the main culvert in communication with the upper part of the large brick cylinders. At both places where one of the cross-culverts intersects the brickwork of the inner cylinder, wooden frames 4 ft. high and 4 ft. wide are placed. These frames are divided into 12 compartments, each 10 ins. by 14 ins., which are covered with valves of sheet-iron. The valves are made to close air-tight by a covering of soft leather on the under side, and are hinged by means of three strips of leather nailed to the frame. The valves in the frame nearest the main culvert opens towards the inside of the inner cylinder, while those in the other frame open outwards towards the air. In the upper part of the large brick cylinder similar openings are made in which wooden frames are inserted. The frames are divided like those described, and provided with valves arranged exactly as those described. The upper end of the large brick cylinders, and of the shafts above the main culvert are closed air-tight by means of thick wooden planking. The annular space, 27 ins. wide, between the two brick cylinders, is filled with water to a height of 7 ft., and in it a sheet-iron bell piston, 12 ft. in diameter and 8½ ft. in height, works up and down, being kept in a vertical position by means of guides.

The stroke of the bell piston varies from 6 ft. to 8 ft., and with a velocity of 200 ft. per minute; the theoretical amount of air exhausted by both pistons amounts to 45,000 cubic feet of air per minute, far in excess of the actual quantity. The bell pistons are attached by means of a rod working comparatively air-tight through the wooden cover of the brick cylinders to the ends of bell crank levers, so arranged and connected together that the two bell pistons balance each other, the one rising whilst the other falls. On this account the power required to move them is comparatively small, a 6 to 8-horse power engine being usually employed. This ventilator, it will be observed, is really a double-acting air-pump, and with the valves made to open the opposite way to those described, the ventilator would become a compressor ventilator. The ventilator at Eagles Bush Colliery is double, with bell pistons 12 ft. in diameter, and costs without engine 300*l*. It exhausts 17,000 cubic feet of air per minute, less than half the theoretical quantity. At the Mynyddbach-y-glo Colliery, South Wales, a double ventilator was put down with bell pistons 16 ft. in diameter; the costs without engine being 400*l*., and capable of exhausting 40,000 cubic feet per minute. The largest put down is at the Middle Dyffryn Colliery, South Wales. The bell pistons are 20 ft. in diameter, and have 8 ft. stroke, and capable of exhausting 80,000 cubic feet per minute. The cost of the ventilator without engine is given at 1000*l*. At the Risca Colliery the pistons are 18 ft. in diameter, 6 ft. wide, and at eight strokes per minute exhaust from 48,000 to 50,000 cubic feet per minute, with a water-gauge drag of 3 in. At the Westminster Colliery a single ventilator at eight strokes per minute gave an exhaustion of 23,500 cubic feet per minute, the water-gauge reading varied from 0 to 1¾ in. the middle of the downstroke, and from 0 to 2 in. to the middle of the upstroke: 1 lb. of coal consumed is given as passing 5250 cubic feet of air through the mine, less than half the average passed by one pound of coal burnt in a ventilatiug furnace.

Struve's ventilator appears to have a less wind effect than the Belgian bell piston ventilator. but in consequence of the valves being suspended vertically less power was required to overcome the resistance of the air in passing through the valves. In other respects both ventilators have the same defects, and the employment of three cylinders instead of two has also been proposed as an improvement for Struve's ventilator.

* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergrath Dr. Von Groddeck, Director of the Royal Bergakademie, Clausthal, The Harz North Germany.

MINERAL RESOURCES OF WEST VIRGINIA.

Some twenty years ago the enormous mineral wealth of Virginia formed the subject of many interesting articles from an esteemed correspondent of the *Mining Journal*—Prof. C. S. Richardson, now of Alma Park County, U.S., yet hitherto very little has been done for their development on a commercial scale. Now, however, a fresh move appears to have been made in the matter, Mr. Edgar Darwin, at the suggestion of the Hon. A. Falkerson, of Bristol, Virginia, having made a careful survey of and report upon the Gladesville district in Wise County. Mr. Darwin is satisfied that no such stores of coal and iron lie hid anywhere as have lately been discovered in Powel Valley, and just outside of Big Stone Gap, in this county. For generations these mountain people have eked a scanty living from their narrow glades and hillsides, unconscious of the fact that their lands contained wealth enough for a nation; that the richest resources incident to civilisation were theirs untouched, and, to a great extent, unknown—exhaustless supplies of timber, stone, iron, and coal! It is in regard to the iron and coal, however, that he has to speak more particularly Geological experts have found eight veins or strata of coal ranging from 3 to 14 ft. in thickness, bituminous, splint, and cannel, which underlie this whole region or crop out along the hillsides.

Referring to his visit to several of the openings into the 14-ft. vein, he states that for miles up and down this outer valley it lies in unbroken stratum 180 ft. above the level land, along the base of the ridge where the cars may pass on easy grade to the railway now building to Bristol, a point of considerable importance in south-west Virginia, upon the great Virginia and Tennessee Railroad. This connection is guaranteed upon a heavy forfeiture within 14 months, and has already about half the heavy work completed. The mining of this vein is favourable, self-drained, and easily dropped into the cars a conjunction of favourable circumstances. This coal cokes beautifully at a loss of only 3 per cent. for smelting purposes, so free is it from sulphur and other deteriorations. The 8-ft. vein which lies above is said to be parallel to the one under review. Great hard blocks of it, splint like and shining with the rich carbonic lustre so suggestive of easy combustion and great heat, were shown to him. Along the middle of the Powell Valley Walden's Ridge extends for some 60 miles. The line of the new railway from Bristol is laid along its foot, and at intervals the side of the ridge is indented with small streams coming down to the river. Following up the beds of these he found cropping out from the banks at a uniform altitude above the river a vein of dye-stone iron ore, 32 to 38 in. thick. He rode down the valley for miles examining many of these spring-brook disclosures. Large quantities of brown hematite ore are found all over the ridge, and so pure is the ore that he is assured that ore from the only open mine was worked into iron at a blacksmith's forge, hammered, and drawn into horseshoe nails! The extent of the dye-stone ore, which is so much esteemed and is so easily raised to the steel standard, is simply enormous; 3 ft. solid stratum!

The gold fields of California and the silver lodes of Colorado sink, in his opinion, into nothingness; and to add to the wonder, between this amazing iron deposit and yonder coal bed, not further away than a cannon shot, lies the white limestone on the mountain side, ready for use in smelting. A concurrence of such dimensions has not been found anywhere else on earth—coal, iron ore, and limestone all in sight at once, and all so close to a grand trunk railroad. Moreover, there lay before him in printed form the prospectus of the Richmond and South-Western Railroad Company, chartered to build a road from the seaboard (York River) to the Mississippi. The shortest and most practicable route laid down by their engineers, who have been in the field for months, leads through Pound Gap in this county, or through the Cumberland Gap if needs be. Should they take the Pound Gap route, as is most likely, a 12-mile road down Power River reaches Big Stone Gap, the scene of their explorations, on an easy river valley grade. Should they take the Cumberland Gap route the road will run under the shadow of the hills which bear these precious burdens. Here, then, between two trunk lines stretching halfway across the continent, and easily connected with the commercial world, lies, in undeveloped richness, the grandest opportunity of the age.

MINERAL WEALTH OF NEWFOUNDLAND.—Reports have been received of the discovery of gold in Newfoundland, Mr. Alexander Murray, who is at the head of the Geological Survey of the island, recently visited Brigus, the locality where the discoveries were said to have been made, in order to test the accuracy of the statements. From an examination of the district and the evidence obtained, he is said to have formed a strong opinion that there is an area of country six miles in length and one mile in breadth which, if judiciously explored and properly worked, will be found to be auriferous. A Canadian report on the subject says that it is expected that a company will be formed soon for the purpose of working the deposits. Commenting on this alleged discovery of gold, the "Colonies and India" makes some opportune remarks. The announcement will, says the quoted paper, serve to direct attention to a colony which has not yet received the attention it deserves. The capabilities of the island are vastly greater than is generally supposed. The coasts teem, as is well known, with fish; and in the interior are large areas of fine grass land, interspersed with belts of valuable timber trees and well watered with rivers and lakes. Sheep and cattle thrive there to perfection. Geologically the island is rich in minerals, among which coal, iron, copper, and lead are foremost. Steps are now being taken to open up the natural resources of the interior by the construction of a railway from St. John's on the east to St. George's Bay on the west, and attempts are being made to make the port of St. John's the first port of call for vessels from Europe. The climate of the island bears no resemblance to that on the great submarine bank over which the heavy fogs hang, through which vessels to and from New York and the St. Lawrence pass. The summer is a delightful season, and the extremes of heat and cold between summer and winter are not so great as on many parts of the mainland of America. Being only seven days' steam from Liverpool, it is somewhat strange that the capabilities of the island are not better known.

THE BLACK AUTOCOPYIST.—The simplicity of the chromograph and the exact reproduction of the handwriting in a colour corresponding with the best black writing ink have been combined in the Black Autocopyist just introduced by Mr. OTTO LELM, of chromographic celebrity, and as the facsimiles produced by the new apparatus are as clean and legible as—in fact, scarcely distinguishable from—the original, there can be no doubt that its adoption will be almost universal as soon as it is fairly placed upon the English market. It has already been adopted by the French Government. That some ready method of reproducing one's handwriting in documents which it is inconvenient or undesirable to send to the printer or lithographer is evidenced by the enormous number of chromographs at present in use, but although with ordinary care 50 or 60 excellent and thoroughly legible copies can be produced from one original, the brilliant purple colour, which is practically the only colour that can be relied on, has been objected to by many as too effeminate and unbusiness-like for commercial purposes. The several efforts which have been made to find a black colour as diffusive as aniline purple for use on the chromograph have all been unsuccessful, and although the schmittotypie was a step in the right direction, it required such skilful and dexterous manipulation that amateurs attempting to utilise it speedily become disheartened and disgusted. The Black Autocopyist is entirely free from these objections. The original is written upon any kind of glazed paper with special ink, which flows as freely and easily as Stephen's writing fluid (probably the best ink made). Whilst the writing is drying the prepared parchment sheet which takes the place of the chromograph pad is soaked for two minutes in clean water, and having been dried with blotting paper is stretched in the printing frame. The original is now laid down, as on the chromograph, and in two minutes the negative is obtained. The parchment surface is then rolled with the printing ink, and only the portions decomposed by the writing will take the ink, the remainder continuing absolutely clean, and repelling the printing ink so completely that it is extremely difficult even intentionally to soil it. The impression is then taken by the hand precisely as with the chromograph, and the process may be repeated almost any number of times, the first 150 copies or so being absolutely uniform in colour and sharpness, whilst the material used will only cost 2d. or 3d., exclusive of paper, according as the work done is note or foolscap size. The invention will be widely appreciated.

FOREIGN COMPETITION.—A contract with Mr. F. Krupp, of Essen Prussia, for the supply of 3000 tons of Bessemer steel rails for the completion of the Norwich Extension of the Lynn and Fakenham Railway, at a price considerably less than that offered by English makers, has been concluded by the contractors for that line.

ROTARY ENGINE.—The cylinder of the engine invented by Mr. S. MELLOR, of Stepney, has within it a pendulous tongue, the centre from which the latter vibrates being placed somewhat outside the radius of the cylinder's bore. The pendulous tongue passes by means of a slot through a circular block which acts as a sort of piston, and the said block is provided with a circular stem which takes into a recess in a concentrically revolving disc which works in contact with the cylinder cover, or the stem on the circular block may take into a square or oblong piece let into the revolving disc and arranged with end play so that the circular block may be kept in contact with the bore of the cylinder as the disc revolves. The disc is fitted to the end of a shaft which passes through a stuffing box on the cylinder end or cover, by which shaft the power of the engine may be utilised; a disc and shaft may be fitted at each end of the cylinder. Passages governed by valves when necessary are provided in the cylinder for the inlet and outlet of the steam or other source of power, or they may be formed in the pendulous tongue, the circular block as it slides upon it then regulating the ingress and egress of the steam. The action of the engine is as follows:—On steam being admitted it presses on the circular block and vibrating tongue, the block slides on the tongue, and the stem in the former which takes into the disc causes the latter, and with it the shaft, to revolve, the block sliding up and down the pendulous tongue, and the latter vibrating to and fro during each revolution of the disc. It is obvious that if the shaft be rotated by any ordinary motive power the engine may be arranged to work as a pump.

RIGNOLD.—The Mountain Democrat, of Oct. 9, says:—The Reed mill is nearly ready to commence crushing rock from the Ringold. Landecker commenced hauling rock this week. Some 3000 tons will be crushed to prove the character of the ledge. The new shaft is steadily going down, all the way through good rock.

Registration of New Companies.

The following joint stock companies have been duly registered:—

THE SWANAGE HYDROPATHIC COMPANY (Limited).—Capital 20,000*l.*, in shares of 5*l.* To purchase and carry on a hydropathic establishment. The subscribers (who take one share each) are—E. Chambers, 32, Gresham-street; E. Forman, 32, Gresham-street; J. Curtis, 9, Old Jewry Chambers; E. J. Farra, Tulse Hill; F. Golding, 32, Theobald's-road; S. Hazell, 32, Theobald's-road; A. Dawkenall, 30, Argyle-square.

THE SHANGHAI WATERWORKS COMPANY (Limited).—Capital 100,000*l.*, in shares of 20*l.* To carry on the business of a waterworks company in Shanghai and neighbourhood. The subscribers are—E. F. Duncan, 72, Old Broad-street, 25; A. Dent, 11, Old Broad-street, 25; E. Iveson, 26, St. Mary Axe, 25; D. Reid, 7, Mincing-lane, 25; J. Maitland, 12, Mark-lane, 25; J. W. Hart, 1, Westminster Chambers, 25; J. H. Hunt, 72, Old Broad-street, 10.

THE ROYAL PERFUMERY COMPANY (Limited).—Capital 10,000*l.*, in shares of 5*l.* The buying, making, and selling perfumery, soaps, oils, &c. The subscribers (who take one share each) are—F. Kœnig, 11, Billiter-square; F. Merklé, 119, Aldersgate-street; T. Strutton, 119, Aldersgate-street; P. Boret, 119, Aldersgate-street; J. H. Martin, 11, Billiter-square; W. Beck, 11, Billiter-square; W. Kump, 11, Billiter-square.

THE NUNDYDROOG GOLD MINING COMPANY (Limited).—Capital 100,000*l.*, in shares of 1*l.* To search for gold in the district of Mysore and elsewhere, and to acquire by purchase from A. L. Preston the exclusive mining rights in certain lands situate at Kolar, Mysore, for 30 years, and which rights were granted to Lieut.-Col. George de la Poer Beresford by deed, and to use and exercise such mining and other rights. To win, open, and work gold and other mines and minerals, precious stones and gems, and generally to carry on all operations connected with a gold mining company. The subscribers (who take one share each) are—H. D. Fergusson, Southampton, Esquire; W. B. McTaggart, Naval and Military Club, captain; J. Marmont, 8, Victoria Chambers, C.E.; J. Taylor, jun., 6, Queen Street-place, C.E.; R. H. Taylor, 6, Queen Street-place, C.E.; J. C. Dearer, Barnes, secretary; J. Elphic, West Hackney, accountant. The following are the first directors—Messrs. Fergusson, McTaggart, Marmont, J. Taylor, and J. S. Kennedy. The number must not exceed eight or be less than five. Qualification for future directors, 250 shares.

THE TUTBURY GLASS COMPANY (Limited).—Capital 7000*l.*, in shares of 15*l.* To carry on the business of glass manufacturers, glass cutters, &c. The subscribers rre—T. Mosley, Burton, 75; E. Radford, Burton, 20; R. A. Eddie, Burton, 15; W. J. L. Smith, Derby, 50; T. Brown, Tutbury, 5; J. Elton, Tutbury, 5; W. Wayte, Burton, 15.

THE CONSTITUTIONAL PRESS CORPORATION (Limited).—Capital 50,000*l.*, in shares of 5*l.* To print and publish newspapers founded upon constitutional principles. The subscribers (who take one share each) are—F. A. Hyndman, 3, Temple Gardens; T. L. Trinn, GA, Victoria-street; W. C. Jackson, 18, King-street; W. F. Fym, 6A; Victoria-street; S. H. d'Asiglar, 98, Harley-street; E. H. d'Asiglar, Acton; T. M. Ellis, 8, Old Jewry.

STEAMSHIP "CITY OF LIVERPOOL" COMPANY (Limited).—Capital 400,000*l.*, in shares of 625*l.* To carry on the business of a shipowner. The subscribers (who take one share each) are—W. H. Ross, Liverpool; A. Cassels, Liverpool; W. H. Goold, Liverpool; A. Stoddart, Liverpool; J. A. Smith, Liverpool; A. Herschell, Oxton; J. Ross, Liverpool.

THE GURNEY IMPERISHABLE COLOURED PHOTOGRAPH AND FINE ARTS COMPANY (Limited).—Capital 25,000*l.*, in shares of 1*l.* To purchase certain patents, and continue the business at 69, New Bond-street. The subscribers (who take one share each) are—J. Gurney, 24, Ampthill-square; A. Thompson, 23, Southampton Buildings; A. Kerly, 14, Great Winchester-street; C. Sutton, Leyton; G. S. Wilton, 69, New Bond-street; F. Ford, Highbury; W. H. Helman, 9, Poets-Corner.

THE RHODES REEF GOLD MINING COMPANY (Limited).—Capital 190,000*l.*, in shares of 1*l.* To acquire a gold reef belonging to the Devala Moyar Gold Mining Company (Limited), situate at Devala, South-East Wynaad, in the Nelgiri district of the Madras Presidency, upon the terms of an agreement made between the Devala Moyar Gold Mining Company (Limited) and C. Fraser on behalf of the company, and other estates and mining rights. To carry on the business of winning and working gold, gold quartz, and other metals and minerals, and preparing same for the market; and generally that of metallurgists, metal dealers, and metal brokers. The subscribers (who take one share each) are—D. L. Salomons, Tunbridge Wells, Bart.; F. Carnegy, Upper Norwood, C.I.E.; W. Baxter, Kilburn, no occupation; A. Light, 44, Emperors-gate, major-general; W. J. Rhodes, Staines, merchant; C. Winns, 34, Nicholas-lane, iron merchant; R. T. Lattey, 16, Devonshire-square, solicitor. A director's qualification is fixed at 250*l.* in shares or stocks.

METROPOLITAN AND SUBURBAN MILK SUPPLY ASSOCIATION (Limited).—Capital 25,000*l.*, in shares of 1*l.* Establishing and carrying on a milk and general dairy business. The subscribers are—F. B. Cole, 31, Newton-road, 500; N. Sadler, Bletchingley, 1000; W. Evans, Twickenham, 500; F. Wallan, 115, Tufnell Park-road, 500; J. Mackull, 26, Budge-row, 250; B. Browning, Rotherhithe, 100; R. L. Spicer, 26, Budge-row, 250.

THE BIRKENHEAD SHIPPING COMPANY (Limited).—Capital 500,000*l.*, in shares of 10*l.* To purchase, build, and charter ships, and generally to carry on a shipowner's business. The subscribers (who take one share each) are—D. MacIver, Burnborough; R. Bashill, Liverpool; W. McJeffray, Liverpool; E. Taylor, Liverpool; W. Hope, Liverpool; W. Laird, Birkenhead; J. Rankin, Hereford,

THE CRUMPSALL PARK COMPANY (Limited).—Capital 50,000*l.*, in shares of 100*l.* To acquire an estate in Lancashire, and carry on operations connected with a land and building society. The subscribers (who take one share each) are—W. Kew, Chorlton; T. W. Handley, Manchester; A. Hannay, Manchester; A. Aitken, Manchester; J. H. Synde, Sali; R. Murray, Manchester; E. Wilde, Manchester.

THE MANCHESTER CARLTON CLUB BUILDINGS COMPANY (Limited).—Capital 10,000*l.*, in shares of 1*l.* To acquire premises and carry on a club at Manchester. The subscribers (who take one share each) are—T. Heighway, Manchester; T. Elliott, Manchester; J. Holmes, Manchester; R. Burns, Manchester; F. Hope, Manchester; W. Owen, Manchester; J. Gorton, Manchester.

THE AFRICAN MILLS COMPANY (Limited).—Capital 25,000*l.*, in shares of 10*l.* To purchase certain premises at Bradford, and continue the business in connection therewith. The subscribers (who take one share each) are—J. F. Hutton, Manchester; G. J. Hutton, Manchester; G. H. Akhurst, Bakewell; C. E. Akhurst, Cheetham; A. R. Gallé, Manchester; S. Mottram, Woodley; J. M'C. Burper, Manchester.

ISINGLASS COMPANY (Limited).—Capital 20,000*l.*, in shares of 5*l.* To carry on the manufacture of isinglass, gelatine, glue, and manures. The subscribers (who take one share each) are—A. V. White, 5, Copthall Buildings; H. M. Price, 5, Copthall Buildings; F. M. Sear, 3, George-yard; E. Church, Clerkenwell; H. Edwin, 79, Cornhill; F. W. Beck, 1, Fenchurch-street; C. Williams, 19, Change-alley.

THE "JERUSALEM" (Limited).—Capital 50,000*l.*, in shares of 10*l.* To continue an old-established coffee-house and licensed victualler's business in the City. The subscribers (who take one share each) are—W. Reynolds, Kingston-on-Thames; J. Thorncloe, Anerley; J. T. Brown, 9, St. Luke's-road; F. Tamblyn, Kingston-on-Thames; J. McDonnell, 44, Farnborough-road; W. J. Thomas, Bow; J. Todd, 44, Finchley-road.

THE OLDHAM COLLIERY COMPANY (Limited).—Capital 40,000*l.*, in shares of 50*l.* To carry on the trades of colliery proprietors, coke manufacturers, miners, and smelters in all their respective branches. To search for, get, work, raise, make merchantable, sell, and deal in iron, coal, ironstone, bricks, tiles, metals, minerals, and other substances. The subscribers (who take one share each) are—A. Fussell, Kingswood, colliery owner; H. Wasbrough, Bristol, solicitor; G. Fussell, Kingswood, colliery owner; P. Fussell, Kingswood, boot manufacturer; W. Jones, Bristol, coachbuilder J. Fry, Birmingham, leather factor; G. Drewy, Birmingham, boot manufacturer. The number of directors must not be less than three or more than seven. The subscribers will form the first board.

"TIN HILL" (Limited).—Capital 20,000*l.*, in shares o 1*l.* To crush, wash, smelt, and dress ores and minerals, metallic and other substances. The subscribers (who take one share each) are—J. Watson, 45, Manor-place; J. Walker, 16, Harper-street; W. Williams, 33, Rodney-road; W. H. Creswell, Walworth; W. H. Richards, 10, Harper-street; G. Allen, 15, Peverill-street; J. Hillery, Surrey-square.

THE DEVALAH CENTRAL GOLD MINES.

The confidence generally felt that when developed with European capital and appliances the South-East Wynaad district will become as celebrated as the most prosperous districts of Australia or the United States, has been already noticed, and in another column will be found the prospectus of the DEVALAH CENTRAL GOLD MINES COMPANY, which has been formed to work a series of properties certainly not less attractive to the capitalist than any of its predecessors. The capital has been fixed at 120,000*l.* in shares of 1*l.* each; 20,000 of these are to be applied together with 50,000*l.* in cash for acquiring the properties, and the remaining 100,000 are offered for subscription at par. The purchase includes three well-known properties favourably referred to by Mr. R. Brough Smyth in his official report, and one specially reported on by Mr. Oliver Pegler, and from the opinions expressed concerning them no doubt is entertained that they will prove remunerative to those who undertake their development. The estates of Hamslade, Hamsluck, and Adelphi are held under lease from the Rajah of Nilamboor for 99 years, from 1854, at a rental of 500 rupees per annum. The mining rights are for 36 years, from August, 1879, with agreement as to renewal. They extend over any 20 acres to be selected within the boundaries of the property, at an annual rental of 25 rupees per acre, with the stipulation on the part of the lessor, usual in such cases, to grant any additional acreage required for mining on the same terms if applied for within five years. The Nadoogany estate is held upon nearly similar terms, the slight difference being pointed out in the prospectus. The purchase price is 50,000*l.* in cash, and 10,000*l.* in shares, for the purchase proper, and an additional 10,000*l.* for the purchase from the Indian Gold Mines Company of all their claim to the mining rights and to the reversion of the leases.

That there are numerous gold reefs existing on the estates is confirmed by both Mr. Brough Smyth and Mr. Pegler, and they are amply large enough, for according to the Government Survey they comprise an area of about 986 acres. The name of the company pretty well indicates the position of the mines, but there is one great recommendation which should be specially mentioned—the Devála bazaar or post-town stands on the property in the centre of the gold mining operations. With regard to the properties themselves it appears that they are in the centre of the auriferous tract stretching between Devalah and Cherumbadi, which has been fully reported upon by Mr. Brough Smyth in his well-known report to the Government of India, and they immediately adjoin the estates of the Devála-Moyar Company, and other well-known gold mining properties. Hamslade, Hamsluck, and Adelphi are particularly described in that official report, and have been again specially reported upon by him. Nadoogany has been specially inspected and reported on by Mr. Oliver Pegler, as already stated. Mr. Smyth states that the Hamsluck, Hamslade, and Adelphi estates are on the edge of the ghat. There is a thick jungle with noble trees quite near the reefs, and there are perennial streams, the water of which could be made to drive machinery of any power likely to be required. The hill on which the Hamslade Bungalow stands is intersected by an auriferous reef, which, from its appearance on the surface, is of great strength. Gold has been got in the quartz, and on washing the soil near the reef gold was found. Indeed, Mr. Smyth was told, and believes, that gold can be washed out of the soil in the garden. Another reef of excellent promise is, he says, that known as the Waterfall reef. Quartz broken out of this vein at its outcrop contained gold visible to the naked eye. They have, in his opinion, a most valuable mining property in the three estates.

With numerous thick and persistently proved auriferous reefs, with abundance of water and an ample supply of timber close to the old native mines, there are, as Mr. Brough Smyth naturally remarks, facilities for conducting mining operations economically, such as are seldom found in other countries. As they have, as already stated, strong reefs and great facilities for getting out stone at a small cost, he would recommend that they should erect at least 50 stamps. Referring to these same properties, he states in his official report that the reefs, the strike and dip of which neatly correspond with those in other parts, are thick and persistent; the average yields of gold, as ascertained by competent persons, are high, and the time cannot be far distant when miners will bring their skill and knowledge to bear on the extraction of gold from veins situate so favourably. About one third of the area of the property is under coffee and cinchona cultivation, and it is expected that the value of the cinchona will be much increased during the next few years, after the trees are matured. In the meantime, Messrs. Parry and Co. have made a firm offer to take a lease from the company for the cultivation of these lands, for three years, at a rental of 10,000 rupees per annum.

But the details in which capitalists are most interested are the estimates of funds required and profits anticipated, and these are very fully given. Mr. Brough Smyth reports that as regards machinery the situation of the reef and the surrounding circumstances would serve to determine whether or not it would be more economical to employ steam or water; but it may safely be asserted that a complete plant, consisting of ten stamp-heads with engine, stone-breaking machine, buddle, saw, and frame, necessary buildings, reverberatory furnace, and all other works could be erected for 5000*l.* Allowing, then, 10 per cent. on the capital, and providing also for a competent mining manager and two European miners (sufficient, if success should result, for the efficient management of 100 stamps and the mining operations which would then be necessary), and providing also for stores, &c., and contingencies at the rate of 25 per cent. on the whole, the annual returns would be, if the quartz yielded gold at the rate of 2 dwts. per ton, nearly equal to the expenditure; if at the rate of 3 dwts., 690*l.* per annum, and if at the rate of 5 dwts. 3570*l.* per annum. It is, however, more satisfactory to know what is actually being paid for getting the quartz in the district, and fortunately this can be readily ascertained by referring to the experience of the Alpha Gold Mining Company, who are carrying on operations close by. The cost of raising the quartz is 4s.; carriage, 3s.; crushing 3s. 7d.; contingencies 3l. = 10s. 10d. per ton; but as the rupee is here taken at 2s. it may be assumed that 10s. would cover everything, and as 5 dwts. of gold would be worth 17s. 6d. it follows that even on quartz of this low produce about 7s. 6d. per ton would be realised. But as Mr. Brough Smyth has shown that the cost of treating high produce quartz is scarcely more than for the treatment of poor ore, whilst the value of the gold, 3s. 6d. per dwt., remains the same, and as the reports show that much of the quartz assays 8 or 9 dwts. to the ton most persons will conclude that it is unlikely that 7s. 6d. per ton will represent the company's profit from the Hamslade, Hamsluck, and Adelphi estates, and with regard to the Nadoogany the report of Mr. Oliver Pegler is not less encouraging. He states that the estate is closely adjacent to some of the most promising and well-known mining concessions in the south-east Wynaad, being bounded to the north, north-east, and north-west by the Sullimalai Hill, Perseverance, the Alpha, Prince of Wales, and the Wynaad Prospecting Company's concessions, the latter being the site of the Glasgow Company's operations, and through which rich auriferous reefs are known to pass. He mentions seven of these—Hamlins reef, Bear reef, Korumbers reef, Etacaul reef, Cavern reef, Mr. Smyth's New reef, and the Skull reef. He adds that several streams exist, one of considerable importance—the Nadoogany river—having a volume and fall sufficient under proper arrangement for extensive motive-power by means of which a large battery of stamps could be worked. The proximity to the main road is, he considers, of the utmost value. Timber from the adjacent forest for mining and building purposes can be obtained and delivered at a nominal expense, and the cartage of stores and machinery from the coast could be effected at a very cheap rate. Taking the company's property as a whole the reports upon it are all that could be desired, so that the directors appear justified in anticipating remunerative results.

FOREIGN MINING AND METALLURGY

Belgian coalowners appear to be very well satisfied with the course of the Belgian coal markets and with the general tone of business. Orders flow in rather satisfactorily, and it is rather difficult to meet the requirements of local consumption. Domestic qualities of coal are naturally the most in demand just at present, at the same time holders of other descriptions have little to complain of. There is not much change to report in the French coal trade; but, if anything, the activity prevailing has become more decided, orders being more numerous. Prices have shown scarcely any variation. A strike has occurred among coal miners at Denain, but it appears to be now subsiding.

Contracts have just been let for 30,000 tons of steel rails required for the Upper Italy Railway Company. The lowest tender was that of the Bochum Company, which offered to supply three lots at 6*l.* 5s., 6*l.* 7s. 10d., and 6*l.* 9s. 10d. per ton delivered at Genoa. The John Cockerill Company offered to supply one lot at Genoa at 6*l.* 10s. 6d. per ton, while Bolckow, Vaughan, and Co. (Limited) required 6*l.* 10s. 7d. per ton, and the Ebbw Vale Steel, Coal, and Iron Company (Limited) 6*l.* 11s. 4d. per ton. The closeness of the competition between the Cockerill, Bolckow, and Ebbw Vale Companies was very remarkable, and it should be stated that when it came to deliveries at Venice 4s. per ton had to be added to the Bochum and Cockerill tenders, and only 2s. per ton to the Bolckow tender. So far, then, as tenders with delivery at Venice were concerned the tender of Bolckow, Vaughan, and Co. (Limited) was lower than that of the Cockerill Company.

The Belgian iron trade has not improved during the past week; if anything, indeed, it has scarcely shown so much strength. The John Cockerill Company was awarded an order for 5000 tons of steel rails in connection with a recent adjudication for the Upper Italy Railway.

Some heavy orders for iron have been received during the past fortnight in the Meurthe-et-Moselle (France). These orders had been anticipated, as a certain number of clients—and among them some very large consumers—had come to the conclusion of contracts entered into some time since, and were, accordingly, under the necessity of renewing them. The producers of the Nancy district have responded by agreeing to sell pig for refining at 2*l.* 8s. per ton for periods spread over the greater part of 1881. At Longwy the current rate for pig is 2*l.* 4s. to 2*l.* 5s. per ton, but some lots have been disposed of at 2*l.* 2s. 6d. to 2*l.* 3s. 3d. per ton. The engagements already contracted, and those which have been further proposed, have brought back a firm tone to the markets. There is also a well sustained and important demand for second fusion pig, as the principal foundries are laying in their supplies for the ensuing year. No. 3 has made on the average 3*l.* 2s. 6d. to 3*l.* 4s. per ton in the Nancy group, and 3*l.* to 3*l.* 0s. 10d. in the Longwy group, taken at the works.

The aspect of the German coal trade has continued satisfactory, and quotations have been maintained with much firmness, and have even shown an upward tendency. The demand for coke also continues good upon the German markets. The tone of the German iron markets has become less active, as the demand is falling off from day to day. The German blast furnaces cannot dispose of their products, and stocks are almost everywhere accumulating. Rates for rolled iron continue low in Germany; a contract for 2000 tons has been concluded at 5*l.* 15s. per ton.

PRECIOUS METALS IN THE UNITED STATES.—The production of gold and silver for the year ending June 30, 1879, showed a considerable falling off, notwithstanding the increased number of mining enterprises. The yield for the year was $38,900,000 of gold and $40,812,000 of silver, while that of the previous year was $47,226,167 gold and $46,726,314 of silver, a falling off for 1879 of 20 per cent. in gold and 12 in silver. The Great Comstock lode was the principal defaulter in silver, having declined to the value of $16,000,000. On the other hand, Colorado doubled her silver yield, and, together with California, increased her gold supply. The Leadville district contributed the large amount of $10,500,000 worth of bullion and ore. For the first six months of this year the shipments from Leadville were $7,813,800.

THE ROYAL SOCIETY.—The awards of medals for the present year made by the President and Council are as follows:—The Copley medal to be awarded to Professor James Joseph Sylvester, F.R.S., for his long-continued investigations and discoveries in mathematics; a Royal medal to Professor Joseph Lister, F.R.S., for his contributions on various physiological and biological subjects published in the Philosophical Transactions and Proceedings of the Royal Society and elsewhere, and for his labours, practical and theoretical, on questions relating to the antiseptic system of treatment in surgery; a Royal medal to Captain Andrew Noble, F.R.S., for his researches (jointly with Mr. Abel) into the action of explosives, his invention of the chronoscope, and other mathematical and physical enquiries; the Rumford medal, to Dr. William Huggins, F.R.S., for his important researches in astronomical spectroscopy, and especially for his determination of the radial component of the proper motions of stars; the Davy medal to Prof. Charles Friedel, of Paris, for his researches on the organic compounds of silicon, and other investigations. The presentation will take place at the anniversary meeting of the society on the 30th inst.

PROTECTION FOR RAILWAY PASSENGERS.—Few accustomed to railway travelling will have failed to notice the inconvenience and danger arising from slippery footboards and from the existence of a space between the footboard and the platform; and although since the death of Sir Julian Goldsmith at Waterloo Station, and the suggestions of the jury at the inquest on his body, much has been done at most of the metropolitan and suburban stations to lessen the danger there is still much room for improvement. At the Engineering Exhibition now being held at the Agricultural Hall Messrs. Joseph Taylor and Co., mining engineers, of London Wall, show a full-sized working model of a patent safety footboard, which is well worthy of a practical trial. It has been designed with the object of preventing the accidents that arise from falling between the footboard and platform by getting in or out of the train while in motion and by slippery footboards. Its principal features are that the footboard is wider than those at present in use, it being intended to overlap by 1 or 2 in. the station platform, that when not in use it assumes position, with face or tread towards the carriage, thus preventing the upper surface or tread getting greasy from the wet or dirt, or slippery from an accumulation of snow or ice. The footboard while in the verlical position may (if considered desirable) be locked in that position by the guard, the locking of the footboard preventing for the time being the carriage door from being opened. While when the footboard is unlocked the opening of the door at once throws the footboard into a horizontal position, which it retains until the door is again closed. It is claimed that the extra width of the footboard, its projecting as far as or overlapping the station platform, will prevent anyone from falling between the two, and together with its being dry and free from ice, snow, &c., will give much greater ease and safety to passengers entering or alighting from the carriages; the doors being held closed until the train is at rest (then immediately released) will effectually prevent the many accidents arising from persons alighting before the train stops, and the knowledge that the footboard is up, and perhaps locked, will deter passengers from attempting to enter the train whilst it is in motion, while, should the attempt be made before the footboard was locked, the extra width of it will prevent them falling on to the rails, and there is nothing to prevent the carriage door being shut should the locking apparatus be brought into use before the door could be closed again, and the step raised. It is only intended to lock the footboard on approaching a station.

THE ALMADA AND TIRITO CONSOLIDATED SILVER MINING COMPANY (LIMITED).

MINA GRANDE.—N. C. Morcom, Aug. 20: We have recently been taking down the western side of the 12 fm. level, and find it contains more ore than the part we had driven on. In a few days we intend to start the end in a more westerly direction. The end driving south of the 12 winze is still in a productive lode; this level is 32 ft. below the 12. The stopes in back of the 12 are much as usual. The lode is 16 to 18 ft. wide in places, and all mixed with metal; at other points 5 to 6 ft. is the width of the paying part of the lode. The operations at and near the spot where we commenced to sink a new shaft below tunnel has shown a nice branch of black ore going north; we shall see what this consists of in a few days. Sept. 3: The 12, driving north, is still in a hard quartz and felspar; there is a little ore in the back of the end, but not sufficient to pay. The lode in the end, driving south of the 12 winze, having become poor, is suspended, and the men put to sink in the bottom of the level, where there is at present a productive lode. There has no change taken place in the stopes above the 12 worthy of notice. Sept. 29: The lode in the 12, driving north, is composed of feldspar, quartz, and a little black metal, but not in paying quantities; a great many feet have been driven of late through unproductive ground. It looks as though we had reached the northern extremity of the splendid ore course at this point. A few feet more driven on the course of the lode will throw a great deal of light on this important subject. The stope in bottom of the 17, south of the winze sunk below the 12, is in a productive lode; the length of the ore body is, however, very short. We shall sink in and excavate the lode as long as it continues to pay expenses. The stope in back of the 12 continues as productive as usual; the great bulk of black ore is from this stope, and large quantities remain to be worked away, but from our present back or height to the tunnel the heart of the lode has been taken away by the big black ore stope below tunnel. (In commenting on this passage, Mr. J. H. Clemes remarks in his letter of Sept. 30—"We think this statement requires to be corroborated by survey, and hope to wait on you within the next fortnight with a transverse section of the points named. Meanwhile we shall detain our half-yearly report.")

SAN JUAN.—Aug. 20: A great quantity of metal is still being excavated from above the old men's working just below the tunnel level, where they worked rather extensively. No further work can be done in the back until we finish the bottom and secure the place. Sept. 3: The excavations in the bottom of the level are nearly finished. We shall soon be able to commence a stope in the back; the productiveness of this place is just as usual. Sept. 29: Large quantities of lode matter are still being excavated and put on the dressing-floors from here; the lode is very large, and the ore scattered throughout; less green ore and more black metal is being met with.

LA VIRGEN.—Aug. 20: The stope in back of tunnel level has met with a poor place in the lode; the north part of the lode is at present yielding good green ore, and the south end black ore of a good quality. On the whole, the stope has not the fine appearance it had sometime since. The stope in back of the 10 is productive of black ore in paying quantities; the lode is rather small, but firm and compact frequently. Sept. 3: Stoping above tunnel level is being pushed on as fast as possible. There are two stopes on the green metal and one on the black ore; the lode is getting smaller as height is attained. The stopes are fairly productive both of green and black metal. The stope in back of the 10 is yielding black metal in fair quantities. Sept. 29: The ore in the stope above tunnel is falling off considerably, and the lode getting much smaller. The hanging wall is taking a sharper angle, which appears to be pinching the lode. The stope in back of the 10 is still productive of a little black ore.

FIRST LODE.—Aug. 20: Of late the end drlying north has been in sterile ground. The lode appears to be greatly disarranged by cross heads and joints; the end is suspended for the present, and the men put to sink in the bottom, where we have a fine show of green metal. The stope in the back of tunnel is giving some good parcels of metal. Had the ground been as expensive to break here as it is in other parts of the mine the probability is that it would not pay to excavate. Sept. 3: The lode in the sink in bottom of tunnel level has fallen off a little in value. The stope in back of tunnel is still productive of a little green ore. Sept. 29: Very fine balls of green metal are being met with in the sink in the bottom below tunnel level; this lode continues as irregular as it is wont to do, therefore we cannot count on it for any length of time. The stope in back of tunnel is orey. The stoping being done at a very cheap rate will no doubt more than pay the expense of working.

TRIBUTE PITCHES.—Several of the tribute pitches are being worked cut; therefore diminishing the quantity of green ore to some small extent.

J. P. Clemes, Sept. 30: We went through the mine yesterday. The block of ore immediately south of the 16 winze is of the fine quality that the 12 vein produces. We hope to begin sinking again next week. The 12 stopes present a very fine appearance, and we think that the layer now about to be attacked will give more of better assays.

Oct. 2: The 12 fm. Stope: After getting off the Thursday's mail I had a talk with Capt. Morcom about this place. He says that the ground he spoke of as taken away was that of the main lode. The west or 12 vein is, of course, intact, and presents a very fine back.

Telegrams from Mr. Clemes, dated Oct. 20 and 28: We have remitted Messrs. Wedderspoon and Co. (San Francisco) basebullion $3000, and precipitate $3500.

FOREIGN MINES.

ST. JOHN DEL REY MINING COMPANY (Limited).—Advices received Nov. 2, 1880, dated Rio, Oct. 2, 1880:—

GENERAL OPERATIONS.

GOLD EXTRACTED TO DATE.—The produce for the second division of September, a period of nine days, amounts to 4043·1 oits. = 466·1035 ozs. troy. It has been derived as follows:—

	Oits.		Tons.	Oits. per ton.
General mineral	2,028·1	from	581 =	3·491
Mineral free from killas	1,832·2	,,	338 =	5·421
	3,860·3	,,	919 =	4·200
Re-treatment	182·8	,,	— =	0·200
Total	4,043·1	,,	919 =	4·400

In consequence of the low rate of sinking less good mineral has been obtained from the sump and more mixed ore from the inclined stope east; this, in a great measure, accounts for the falling off in the standard yield per ton of stone stamped. The output has been also unfavourably influenced by the short supply of water, and by the numerous stoppages rendered necessary for placing machinery in connection with the permanent hauling work.

MINE.—Return of duty for 13 working days:—

Mineral raised from the mine	1768 tons.
Mineral quarried per borer per diem	1·02 ,,
Average attendance of borers daily	133·84
Average attendance of natives daily	277·61

Measurements for the month of September:—

Sinking sump-shaft vertically	1 ft. 0 in.
Driving cross-cut south	22 2
Driving cross-cut north	4 6

The ground in this level is principally composed of dark quartz, which is very hard and difficult to bore.

Western driving extended	20 ft. 6 in.
B shaft deepened	7 2

And is now ready for the reception of cages.

No appreciable alteration in the character or size of the lode throughout the mine has taken place.

Total rainfall for September	2·82 in.

Advices received Nov. 15, 1880, per Douro (s.), dated Morro Velho, Oct. 18:—

GENERAL OPERATIONS.—The very exceptionally low gold return, resulting in a loss of 248*l.* 19s. 7d. on the month's working, was anticipated, and referred to in a former report. The main causes of such a low return have been a decline in the average yield per ton of 0·439 oit., constant interruptions to the regular output of mineral, the employment daily of a large force on the permanent work, and the limited supply of water usual at this season of the year.

GOLD PRODUCE FOR THE MONTH OF SEPTEMBER.—The gold extracted during this period amounts to 17,053·6 oits., equal to 1966·0026 ozs. troy. It has been derived as follows:—

	Oits.		Tons.	Oits. per ton.
General mineral	8,890·6	from	2104 =	4·225
Mineral free from killas	6,829·5	,,	1130 =	6·044
	15,720·1	,,	3234 =	4·861
Re-treatment	1,333·5	,,	— =	0·412
	17,053·6	,,	3234 =	5·273

EXPERIMENT DEEP AND SHALLOW STAMPING.—The Elephant mill, fitted with a shallow cast-iron coffer, was started on the 14th inst. On the 21st idem the experiment was interrupted, owing to the fracture of both of the mill springs.

RE-TREATMENT OF RESIDUARY SAND.—14 tons of the Cotesworth tailings were reduced in the Californian pan, fitted as an ordinary triturator without quicksilver. Result—Average assay value of the sand ..... 2·246 oits. per ton.

Recovered	0·857	,, ,,
	1·384, or 61·8 per cent.	

PERMANENT HAULING MACHINERY.—This work is rapidly approaching completion. The large sollar, destined for the delivery of the mineral raised by the new incline plane, is finished, together with the greater part of tramroad and landing braces. Also a capacious engine sollar, the squaring of the brow of B shaft, and the channelling of level 277 for the discharge of water.

At surface the air receivers are in position, and the house, water-cisterns, and framework connected therewith nearly completed. The greater part of the new mineral wagons have been made, and the construction of the shaft hauling frame (poppet heads) is well forward.

COST AND PROFIT.

Produce for September.....	17,031 oits., at 7s. 9d. per oit.=	£6599 13 4
Cost		6848 12 11
Loss for the month		£ 248 19 7

An increase of ¼d. per milrei in the rate of exchange has unfavourably influenced the cost.

MINE.—Mineral raised from the mine ..... 3417 tons
Mineral raised per borer per diem ..... 1·07 ,,
Average attendance of borers daily ..... 123·16
Average attendance of natives daily 256

EASTERN SECTION.—The extraction of mineral has been principally from the eastern stope and from No. 1, west from sump. The increased removal of this part of the sump section became necessary, with the view to an increased area of stoping ground, which the present stripping of the lode roof overhead will shortly admit of. Owing to the limited sinking duty in the sump no change has occurred in the previously reported proportion of lode and killas. The stopes west from sump show no alteration; the more westerly ones have been temporarily suspended, pending the deepening of the sump and completion of the permanent machinery.

CROSS-CUT SOUTH.—This has been advanced 22 ft., through the same mineralised killas.

WESTERN SECTION.—Beyond the sinking and easterly advance of section 277 C little has been done, owing to the scarcity of water for haulage from this part of the mine.

CROSS-CUT NORTH.—Total length nearly 10 fms., through highly mineralised quartzose rock, similar to that extracted within the excavation. No opinion can at present be arrived at as to the cause of such a marked divergence, or what may eventually prove to be only a swell, similar in character to that met with in the south level 234 A.

WESTERN LEVEL.—No indications have as yet been met with that in any way denote the existence of mineral in this direction.

CUIABA—GOLD PRODUCE FOR THE MONTH OF SEPTEMBER.—856·1 oits., from 348 tons, equal to 2·460 oits. per ton.

PRODUCE, COST, &c.

EXPENDITURE ON CAPITAL ACCOUNT:—

Surface buildings and other works	£ 429 7 1
Mine and milling	623 9 6¼
Total cost	£1052 16 7¼
Less value of produce	346 0 1¾
Excess of expenditure	£ 706 16 6

DEEP ADIT—CRANSTON DRILLS.—The adit has been advanced 32 ft., at a cost per fathom of 33*l.* 14s.

BROWN'S S.E. (Fonte Grande) has been driven 20 ft. 6 in., through lode of a less auriferous quality.

BROWN'S N.W. (Serrote) has been temporarily suspended.

GOLD EXTRACTED TO DATE.—The produce for the first division of October, (a period of 11 days) amounts to 7850·4 oits., equal to 905·0232 ozs. troy. It has been derived as follows:—

	Oits.		Tons.	Oits. per ton.
General mineral	4,142·5	from	926 =	4·473
Mineral free from killas	3,164·5	,,	447 =	7·080
	7,307·0	,,	1373 =	5·322
Re-treatment	543·4		— =	0·395
Total	7,850·4	,,	1373 =	5·717

The above produce is at the rate of 713 oits. per diem.

MINE.—Return of duty for 13 working days:—

Mineral raised from the mine	2191 tons
Mineral quarried per borer per diem	1·42 ,,
Average attendance of borers daily	118·77
Average attendance of natives daily	255·31

No change to advise in either the eastern or western section of the mine.

PERMANENT HAULING WORK.—Every possible hand employed thereon.

The gold troop, conveying four boxes of bar go.d, weighing 19,165·5 oits., equal to 2209·4703 ozs. troy, was dispatched for Rio and England on the 16th inst.

N.B.—The gold has duly arrived.

Telegrams received:—On Oct. 25, dated Rio, the 23rd—"Produce, 11 days (first division of October), 7750 oits. Yield, 5·8 oits. per ton. Every hand that can be employed on the work now engaged in preparing hauling machinery. Rains have set in."

On Oct. 29, dated Rio, the 29th—"Produce, nine days (second division of October), 7500 oits. Yield, 5 oits. per ton. All going on well."

On Nov. 12, dated Rio, the 11th—"Produce for the month of October, 24,000 oits. Yield, 5·5 oits. per ton.—Cuiabá: 350 tons stamped. Yield, 2·6 oits. per ton."

SOUTH INDIAN GOLD.—Letter from Capt. W. Gifford, dated Adeline Estate, Devalah, Oct. 18: I beg to inform you that a second reef has been struck on the Mangoe range. In No. 3 tunnel, which has been driven 155 ft., we have cut into the north reef. So far as can be seen it is fully 3 ft. wide, and in different samples selected for washing I find a light show of free gold, and the quartz is highly impregnated with pyrites. In No. 4 tunnel we have struck on No. 1 reef, and cut into it 2 ft.; no signs of being through. I will report to you more fully by the next mail.

— Letter from Capt. W. Gifford, dated Adeline Estate, Devalah, Oct. 23: On the 20th inst. I advised you that we had cut No. 1 reef in another tunnel; this tunnel was started at the lowest part of the Mangoe Range, and driven 57 ft., at which point it has intersected No. 1 reef at right angles. The reef has been cut into fully 5 ft., with no signs of being through, it having the same bearing as seen in the two tunnels above (near east and west), but a faster dip, which looks well for continuation of same as depth is attained; it is highly charged with pyrites. I have washed several samples, two of which show free gold. It has, so far as can be seen, a very promising appearance. From the level of this tunnel to the summit of the Mangoe range, and taking into consideration the inclination of reef, we have fully 200 ft. of backs, which can be worked at great advantage by stoping. This reef can also be traced by its outcrops and native workings in your property for over a mile in length. No. 3 tunnel has been driven to prove the northern part of the Mangoe Range, which is in 158 ft., where it intersects and goes through a reef about 4 ft. thick, of a most promising character, being highly mineralised, and showing visible gold in several washed samples. This reef has a very great underlie in a northerly direction, and in my opinion is inclining towards another reef further north. To prove this I intend driving the same tunnel some distance in that direction. The two ends driving on No. 1 reef, in No. 2 cross-cut, are looking much the same as for some time past. The reef in both ends is fully 8 ft. wide. All other points of operation are progressing satisfactorily. Labour plentiful.

INDIAN GLENROCK GOLD.—W. Gifford, Devalah, Oct. 23: The ground in tunnel at Greenrosa has become very hard during the last two weeks, consequently the progress of driving is slow, boring and blasting with dynamite being necessary. The end is in 90 ft. from the surface. The new gang of coolies which I was obliged to send there are working satisfactorily.

SOUTH-EAST WYNAAD ESTATES AND GOLD MINING.—Eight bags of quartz taken from seven cases ex Poonah were forwarded by Messrs. Pixley and Abell to Messrs. Johnson, Mathey, and Co., whose assay shows an average of 6 ozs. 9 dwts. per ton, inclusive of the Bolingbroke leader. Further certificates from the same firm and from the Royal School of Mines give the assay of leaders on the Elizabeth estate at 8 oz. per ton, and on the Needlework estate at 60 ozs. and 68 ozs. to the ton.

OOREGUM GOLD.—The directors have received a letter from Colonel Le Poer Beresford, Madras, dated Oct. 19: We commence crushing in about 15 days. About 1200 to 1500 tons of stone are on the bank, which will give an average of over 1 oz. of gold per ton. The stone is taken from open working; secondly, from an underlay shaft 74 ft. deep, reef 5 ft. thick; and, thirdly, from a drive from the south of No. 3 shaft towards the underlay, 72 ft. long, and within 20 ft. of the underlay reef, 7 ft. thick and rich. The find is further north, 50 ft. from the underlay. The reef cut in No. 4 shaft last week is 3 ft. thick, and very rich, gold visible in the stone, and lots of good rough gold in the "mulloch" or mud casings.

SANTA BARBARA GOLD.—Mr. W. H. Richards, Pari, Oct. 16: During September 924 tons of mineral were stamped, yielding, with the produce derived from the extra strakes, a total of 4010 oits. of gold, or equivalent to an average of 4·340 oits. per ton of stone stamped. 978 tons of mineral were sent to the stamping mills, of which 54 tons remained unstamped on Oct. 1, owing to the temporary short supply of water to the mills. This produce of 4010 oits. of gold, valued at 8s. 6d. per oit., amounts to 1704*l.* 5s.; and the estimated working cost for the month, at exchange 23¼d., being 1194*l.* 17s. 2d., leaves an estimated profit of 509*l.* 7s. 10d. for September. In addition to the above mine working cost, the sum of 327*l.* 12s. 2d. was expended during September on capital account. In respect of the construction of the new watercourse and additional house accommodation, Mr. Richards reports that, although the number of heads working during the month of September at the stamping mills amounted to but 35 out of 51 heads, yet the quantity of stone treated shows an increase, as compared with August, of 51 tons, and the produce an increase of 415 oits. The dressing tables of the No. 5 stamping mill having been increased by three additional strakes, a separate return had been kept of the produce from this mill, which in 18 days crushed 236 tons of ore, yielding 1114 oits. of gold, or a total of 4·720 oits. per ton, thus showing that much advantage had been derived from these additional dressing tables. The mine captain reports that the quantity of ore raised during the month amounted to 1271 tons, of which 293 tons were rejected at the spalling floors as refuse stone, and 978 tons sent to the stamps, of which 924 tons were treated and 54 tons carried over to October. Average quantity of ore raised per borer for the month 37·3, or per hole bored ·59 ton, or equivateut to 62 wagon loads per man for the month.

NEW GOLD RUN.—F. M. Chadbourn, Oct. 27: The mill has been running continuously since my last, and has crushed up to date about 1700 tons; we shall have run through by Nov. 1 2000 tons, and will then make a thorough clean-up of mortars and sluices. The sluices thus far have done well; we have taken out of them about $1500 in amalgam. I do not anticipate more than expenses from this run as we have necessarily crushed a good deal of gravel from the top that had fallen down and mixed with the bottom and could not be separated; I think there has been 500 or 600 tons of this top dirt crushed in the run. The bedrock has not cleaned as well as I expected, as it had all been partially cleaned before, and it seems, as I wrote you in my last, that only a strip running through it bears this coarse lead gold. We are pushing drift as fast as possible, and shall soon be in far enough to open out a good breast, we find gold all the way along, but nothing very coarse; have got it extended about 60 feet. There is still a good supply of water, and I may manage to keep it running until rains set in.

PITANGUI (Gold).—The directors have a cable message from Mr. T. S. Treloar giving the produce for the month of October, which amounted to 150 oits. of gold. The directors regret to note that the result of the past month is even less than that of September, but the shareholders were informed of the obstruction of the water in the Ouro Podre vein which still exists, and trust this will not be of long duration, as measures taken to drain it were being pushed on with all speed.

CAPE COPPER.—Capts. Henwood and Lanksbury, Sept. 30: Ookiep: There is no material change to notice in the ground in sinking the new shaft below the 92 fm. level. The 92, north-east of the new shaft, during one part of the month produced saving work; the present end is poor. The 92, east of the new shaft, is still unproductive; the stope at this depth yields 10 tons of high quality copper ore per fathom. The ground in the 80, north-east of new shaft, having become unfavourable for copper we have suspended it, and put the men to drive south-east of the new shaft, in ground worth 4 tons of copper ore per fathom. The 80, north-west of No. 35 winze, is aiso suspended, and a stope commenced by the side of this level to prove the ground in that direction; present value 6 tons of copper ore per fathom. The 80, south-east of No. 31 winze, shows an improvement since our last report; the present end is worth 5 tons of copper ore per fathom. Not having met with anything of value in the 68, south-east of No. 32 winze, we thought any further operation at this point unnecessary, and have consequently started to drive south-east of the new shaft at this depth on a small vein of copper ore. No. 37 winze, below the 68, is still worth 2 tons of copper ore per fathom. The sink below the 68 produces 4 tons of copper ore per fathom; the object of this sinking is for ventilation, and to facilitate stoping. No. 38 winze, below the 58, is communicated with the stope in the back of the 68; this has also laid open the ground conveniently for stoping. The stopes throughout the mine continue to yield well.

SPECTAKEL.—Capts. Henwood and Lanksbury, Sept. 25: The 64, east of No. 1 winze, has continued to open out some good stoping ground, the richest part being apparently in the bottom; present forebreast produces about 2½ tons of copper ore per fathom. The 64 north has also passed through some good ground, the end at present being worth 4 tons of copper ore per fathom. We have commenced to sink the incline below the 64 in order to develope the mine at a greater depth. The stopes in the bottom and back of the 53 maintain their average yield of 3 tons of copper ore per fathom.

TRIAL MINES.—Capts. Henwood and Lanksbury, Sept. 30: Nababeep The trial shaft at this place is being sunk rapidly, and the ground shows a few spots of copper ore. The stope in the bottom of the 17 continues to produce 2 tons of copper ore per fathom.—New Centre East: There is no materia. change in the trial shaft sinking at this place, the rock at the present time being unproductive; we purpose at the end of next month, if no alteration takes place in the ground, to cross-cut in order to prove the surroundings.—New Centre West: The ground in the bottom of the trial shaft has considerably improved; it is chiefly composed of quartz, and is producing saving work for copper ore.—Springbokfontein: Having recently inspected this old mine we think that the indications are sufficiently good to warrant a further trial to be made in depth; we have consequently commenced the preparatory works necessary for its accomplishment.

RETURNS.—For September, Ookiep, 1200 tons of 29 per cent.; Spectakel, 145 tons of 34 per cent.; Nababeep, 33 tons of 18 per cent.—Arrivals at Port Nolloth: The Ianthe and the Glanrafon.—Arrivals at Swansea: The Cambalu, Galatea, and L'Esperance.—Bills of Lading Received: 470 tons of ore per S. T.; and 585 tons per Tacna.—Sales of Ore: 680 tons at 12s. 1½d. per unit; 300 tons at 12s. 2d. per unit; and 470 tons at 12s. 3d. per unit. (* In the last report the assay of the Ookiep ore for August was stated at 25 per cent. Fresh samples taken at the mine have since proved it to be 28 per cent.)

VIRNEBERG COPPER.—R. K. Roskilley, Nov. 13: I am very pleased to be able to state that the hopes I expressed in my last and previous reports respecting the bottom of the mine are apparently about being realised. In the 160 cross-cut, east of shaft, the lode recently met with is much improved, and yielding some very fine stones of copper pyrites. The composition and general character of the lode are most congenial for the production of large bodies of ore, and if the lode continues to improve, as we have very good reason to expect, it will undoubtedly open up in its course a large piece of profitable ore ground. We are pushing on the driving with all dispatch, so as to cut through the lode, and during the last fortnight 4 metres have been explored. The two stopes in the back of the 140, south of shaft, are worth 4*l.* and 7*l.* per fathom respectively. In the stope in the back of ditto, north of cross-cut, the lode is a little improved, and worth 11*l.* per fathom. The stope (north of rise) in the back of ditto, south of shaft, is worth 7*l.* per fathom. The stope in the back of this level, north of rise, on the hanging-wall of the lode is worth 8*l.* per fathom. The stope in the back of the 120, south of shaft, is improved, and worth 15*l.* per fathom. In the back of ditto, in the footwall of the lode, the stope is somewhat fallen off in value, and at present is worth only 6*l.* per fathom. Our attention and energies are being devoted to the dressing of ore, and all effort made so as to prepare for another shipment, towards which we have 1022 centners (about 50 tons) already dressed. All surface work is going on satisfactorily.

*** The following were omitted last week for want of space.

DON PEDRO.—Mine captain's report for September: The 60-ft. drainage wheel has worked throughout the month with but little alteratiou to note. No movement is perceptible to the eye, although grinding somewhat on the keys between axle and centre plates. To keep expenses as low as possible, and at the same time jack-head lift safe from the 6th current, the wheel has been worked by day only, and to the present time this arrangement has been so far answering well. Various repairs have been effected in the incline, such as lifting &c., and all machinery kept in good working order.—Adit Level: One set put in, one old decayed set taken out, and two sets of laths renewed.—Erection of Hydraulic Engine, &c.: Basis for foundation wall built 20 ft. 6 in. high and 26 ft. long by 8 ft. wide, to have an immovable bottom for the foundation, as per drawings sent out, and the latter built 3 ft. 6 in. high, with cut or dressed stone—all hold-down bolts fixed, &c. A large quantity of stone is raised and dressed for the work. The foundation for the accumulator and steamer, &c., excavation for building, and masonry for the same are being pushed forward vigorously. A 4-ft. stope removed, and another 3 fi. deep in hand.

ISABELLE (Gold and Silver)—Foreman's report for week euding Oct. 17:—Advance maee, 52 ft.; total distance from mouth, 4014 ft.; from monument, 4086 ft. The rock is excessively hard, and breaks poorly, otherwise everything is running as usual.

CHONTALES.—The directors have received advices from their manager, dated Oct. 5 last, who reports: The mill worked an average of 17 stamps for 23 days, and crushed 965 tons of ore, producing 85 ozs. of gold, or an average of 1¾ dwts. per ton. Cost at the mine for the month of September, 602*l.*; value of the gold, 254*l.*; loss, 348*l.* The cashier and millman had arrived at the mines in good health. By the same mail the directors have a letter from Mr. Bell Davies, dated St. Thomas, Oct. 25. Mr. Davies expects to be at Greytown on Nov. 11, and would proceed immediately to the company's mines.

CANADIAN COPPER.—Francis Bennetts, Oct. 29: St. Francis Mine: The adit level has been repaired to the shaft; the shaft has also been retimbered to the adit level, and a boiler and pump forwarded to the mine. The boiler and steam-pump are now being placed in position to drain the water from the mine.—Bolton Mine: The cross-cut through the vein at the 10, south of north shaft, has passed through the mundic part, containing copper ore of about 1½ per cent. in the mass, and is now in a part that contains a little copper ore and mundic. In the 10, driving north of the north shaft in the under portion of the vein (the part being carried), we find very good stones of rich yellow copper ore. This mine is looking very promising.—Acton Mine: The black shale at Williams's pit is not so productive of copper ore as it has been. In the 30, east of No. 5 shaft, the vein is improving, and yielding some very good stones of yellow copper ore, and occasionally small quantities of red ores are found. This drift is now within a few feet of being under the winze from which the black copper ore was obtained, and from the appearance of the vein in the present end (lime rock interlaced with branches of calcspar containing rich yellow copper ore and red ores—erubescite) there are very reasonable grounds from which to draw the inference that a greater improvement at an early date may be anticipated.—Hartford Mine: We are sinking a winze in the bottom of the 50, east of No. 7 shaft; the vein in the winze is about 6 ft. wide, of good ores, and I am glad to say that the ores from the stopes show a very decided improvement in quality throughout the mine.

NEW GOLD RUN.—F. M. Chadbourn, Oct. 19: The mill is still running night and day, and doing good work, and I hope to have enough water to keep on running, but may have to suspend work for a short time. If possible I shall clean the ditches without turning out water, but in repairing flumes little can be done unless the water is turned off. We have crushed over 1200 tons of cement, and shall through about 800 tons more before cleaning up; have already taken out of sluices about $1100. These we clean up weekly, and the mortars are cleaned up at end of run. I hope the mortars are catching most of the coarse gold, but in this may be deceived. I am satisfied that several hundred tons of cement crushed in the beginning was poor, but hope the bedrock cleanings will make up for this. It seems there is a pay streak of coarse gold running through this ground, and aside from this we find but little coarse gold. This streak is about 50 ft. wide, and on the bedrock already uncovered had been pretty thoroughly cleaned during Stones work. We are now re-cleaning it, and in this pay streak find more or less every day. As near as we could tell the direction of the streak we started in our drift, but I think we are too far to the east, and are turning the drift in a westerly direction with the expectation of striking into it. Nearly all the dirt from the present run has been taken from ground east of the streak, and but little of the valuable cement has been crushed. I am pushing drift as fast as possible, and I think we are nearly through the broken bank. We find coarse gold on the pay streak I have before mentioned and nowhere else, although we find gold everywhere in the bedrock in smaller quantities. I believe all of the cement within 3 or ft. of the bedrock will more than pay expenses for crushing, but I do not think we shall strike any very rich ground until the drift is run from 50 to 100 ft. further on.

PESTARENA UNITED.—Nov. 3: Pestarena District: 33 Fm. Level: The end driving north on No. 1 lode has a small branch of ore with flookan that gives a little saving work. No. 5 lode driving north produces 3 tons of ore per fathom, and yields 1 oz. 15 dwts. of gold per ton. It is decreased in size, but the ore is richer, and the width will most likely open out again shortly. The 55, driving north on No. 1 lode is resumed, with a small lode showing of little value. In the 65 the driving north on No. 5 lode goes forth in decomposed schist, with occasional patches of ore. The end driving south, on No. 5 lode, produces 20 tons per fathom, yields 1 oz. 10 dwts. per ton, and shows a fine lode 6 ft. wide, of high grade quartz and pyrites. The 80, driving north on No. 1 lode, is resumed, but the lode is valueless at present. The 90 cross-cut west continues in stiff gneissose rock. In the 110, the lode in the north end, on No. 1 lode, is divided into two small branches, which give a little saving work. The end driving south, on No. 1 lode, produces 3 tons per fathom, yields 1 oz. per ton, and has a narrew branch of good ore. In the 80, the end in back north of rise, on No. 1 lode, produces 8 tons per fathom, yields 1 oz. 3 dwts. per ton, and has a good lode coming in which lengthens as the stope rises. The end in back south, on No. 1 lode, produces 4 tons, and yields 1 oz. 3 dwts. per ton, and is improving and extending, so that a good piece of ground is expected to be opened. Driving to prove length in both stopes is being done here. The 100 back of Intermediate, on No. 1 lode, produces 7 tons per fathom, yields 2 ozs. per ton, and shews a good lode all over the back, being chiefly red pyrites. The double skip-road in incline shaft is finished to surface, and the erection of the hauling gear with fittings to shaft are only necessary to complete the work. It is hoped hauling will be resumed in about 12 days: 342·375 metric tons of ore were milled during October, and 498 ozs. 13 dwts. 12 grs. of bar gold produced, showing an average yield of 1 oz. 9 dwts. 3½ grs. per ton. All the machinery continues in good working order, and the new mills are expected to be ready early in the month of December.

Val Toppa District: The end of cross-cut west, at No. 1 level on flat lode, is in more congenial ground, and the lode looked for should be near. The end north at No. 2 level north, on west lode, produces 6 tons per fathom, shows 5 dwts. per ton, and shows more sterile rock on footwall, and the lode thrown flatter. The end south at No. 2 level south, on great quartz lode, without having ore of any kind, looks better than for some time past. The cross-cut west from No. 2 level on great quartz lode has strings of quartz, with occasional spots of pyrites crossing the end. The end south at No. 2 level, on flat lode, is resumed in talcose schist. The rise in back of No. 2 level, on flat lode, is high enough to hole to stope, and is therefore suspended; no ore has been seen. Winze in bottom of intermediate of No. 2 stope, on flat lode, having cut the slide, was suspended to search along it where a little ore appeared. The lode in driving south from winze shows a small branch of quartz of no value. The end south on new lode was holed to winze, and stopes further south, having a decent lode to the last. The cross-cut east from holing point of the above has passed through paying quartz, but is now in schist. The end south at No. 3 level, middle lode, produces 3 tons per fathom, yields 6 dwts. per ton, and shows numerous bands of sterile quartz, accompanied by a branch of ore. The end south, at No. 3 level on slide, has been resumed to communicate with rise from No. 4 level, for ventilation to latter level and prove the slide more. The cross-cut east, at No. 3 level, is in good ground, but suspended awhile. The rise at No. 4 level on slide will be carried a little higher, being now in promising rock. 485·727 metric tons of ore were milled during the past month, yielding 197 ozs. 3 dwts. 12 grs. of bar gold, or an average of 8 dwts. 2½ grs. per ton. The yield is thus low on account of the stamps being kept on the great quartz lode poor ores, for a trial; the result of this will be sent later, the trial not being finished yet, and the gold will be included in the next return.

SENTEIN.—Oct. 30: The manager reports as follows: I have to inform you that we have raised 450 tons of ore during the past fortnight, and have brought to the floors 460 tons of usual quality ore. I am glad to say our No. 4 end continues of the same value as when last reported on. There is nothing to remark of the stopes. We have 100 tons of of first-class silver-lead ore, 25 tons of carbonate of lead and about 300 tons of blende ready to be sent to market. The silver-lead is already sent to St. Giroas, as well as part of the blende.

[For remainder of Foreign Mines se's to-day's Journal.

THE IRON TRADE OF PRUSSIA.—A steady and satisfactory increaes appears to be taking place in the production of iron in Prussia, as shown by the figures of the last 43 years:—

Year.	Pig-iron.	Cast-iron.	Merchant iron.
1837-46 ...Tons	1,046,907	189,083	1,052,445
1847-56	2,070,650	487,856	2,350,173
1857-66	5,496,767	1,115,684	4,517,420
1867-76	12,709,720	2,649,610	11,090,467
1877-79	4,629,404	864,873	4,170,682

The production of iron ore in 1878 was 4,045,883 tons from 787 mines, employing 25,352 miners. This calculation includes Loraine, with 17 mines and 1539 miners, turning out 822,360 tons. The production in the same year from Luxembourg was 1,411,218 tons, from 35 mines, employing 2393 men. Considering the depression through which the iron trade has been passing in Germany, as elsewhere, the rate of increase is a favourable item in the industrial outlook. The imports for the first seven months of the present year are unusually heavy, particularly when we bear in mind that the new duties are in full operation. This applies especially to machinery, of which 2639 tons were imported in the month of July alone.

THE IRON TRADE.—Messrs. J. Lawrie and Co., of Old Broad-street, write—Though at the moment business in the Scotch Iron Market is quieter than at this time last year, a closer examination of the statistics available will be found in large measure to justify the hopeful view taken by so many, which your remarks were intended to guard your readers against. Taken alone, shipments in October, 1879, as you state, show a large excess over those during the month just closed; but it should be borne in mind that at the prior date the Scotch iron trade, in common with the iron trade of the whole country, was full under the influence of the extraordinary and altogether exceptional demand which suddenly set in from America last autumn, and it is only by comparing the figures for a longer period that the true state of the case can be ascertained and a reliable judgment formed. If we take the 10 months from January to October inclusive, the shipments of Scotch pig-iron for 1879 were 489,038 tons, while for this year they are 579,178 tons—an increase of 90,140 tons, or more than 18 per cent. upon last year. This increase is entirely upon the foreign shipments, and shows that while the demand from abroad is steadily and rapidly growing, our home trade is at least as good as it was last year. At present the shipments maintain a good average of 8000 to 10,000 tons weekly. The large increase of stocks in Connal's stores since October, 1879, amounting to 120,400 tons, took place in great part previous to June 30 last. On Oct. 31 last year the stock in these stores stood at 356,056 tons. By Jan. 1, in consequence of the speculation generated by the American demand, it had risen to 415,625 tons; that is to say, the large addition of 59,569 tons was made during the two months of November and December last, while during the succeeding six months only 32,375 tons were added, the stock at June 30 last being 448,000 tons. From that date to Oct. 31 the increase has been 28,440 tons, or at rather a higher rate than during the preceding six months; but this augmented ratio is already a thing of the past, for last month, notwithstanding the fact that the shipments fell off by nearly 50,000 tons as compared with 1879, the growth of stocks in Connal's stores was only some 2800 tons. From a consideration of what we have stated it will be seen that, with shipments largely and rapidly increasing and stocks almost stationary, there is every prospect of the evidence of the better state of things, so largely believed in as actually existing throughout the country, very shortly becoming prominently conspicuous in regard to the iron trade.

NEW RAILWAY IN DEVONSHIRE.—A line of railway is proposed to be constructed from Barnstaple to Lynton, and as it will pass through the silver-lead district of Combmartin it will be calculated to open up the mining properties there. The line will also pass through an iron ore district close on the borders of Exmoor.

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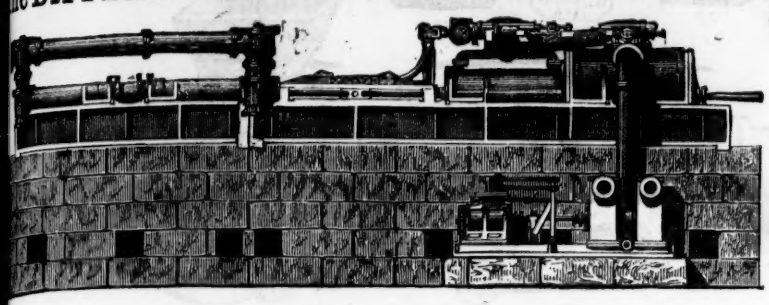

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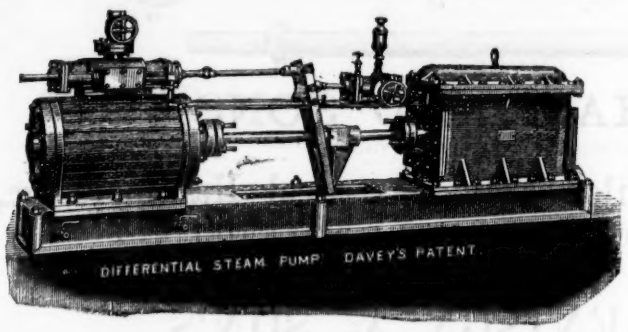

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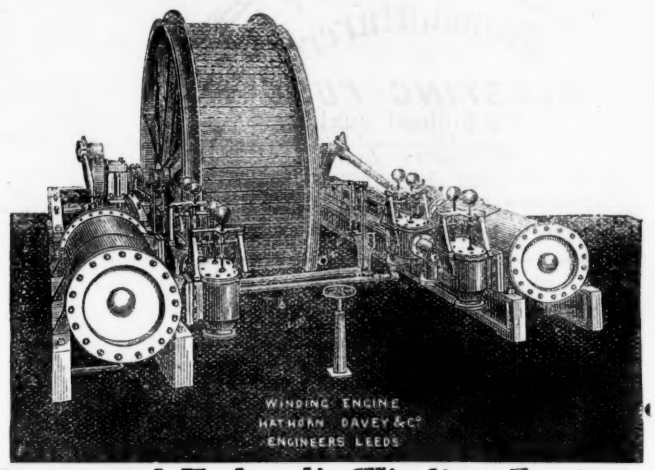

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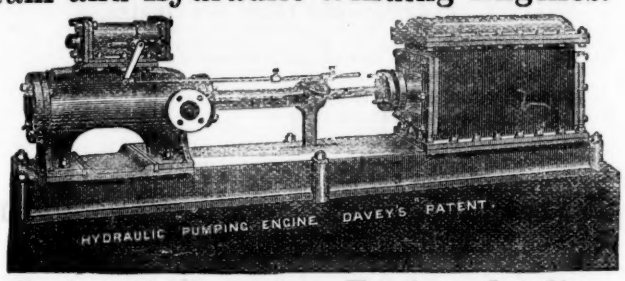

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